

PHILOSOPHICAL TRANSACTIONS.

XII. *Contributions to Terrestrial Magnetism.—No. IX.*

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Containing a Map of the Magnetic Declination for 1840 in the Atlantic Ocean between the parallels of 60° North and 60° South Latitude.

IN compliance with repeated representations from the Hydrographer of the Admiralty, that a correct map of the magnetic Declination over the Atlantic Ocean corresponding to the present epoch was most urgently required for the purposes of navigation, I have deemed it proper,—partly on account of the importance of the object itself, and partly in acknowledgement of the claim which the practical wants of those who traverse the seas have on that physical science which they so much contribute to advance,—to suspend the progress of the publication of the observations made at the colonial magnetical and meteorological observatories, until in compliance with the wishes of the Admiralty a Declination map of the Atlantic has been completed. I have endeavoured at the same time so to conduct and arrange the preliminary investigation, that it may form a fitting part of the magnetic survey of the globe, which is designed to be comprehended in the series of Magnetic Contributions, of which the first eight numbers have been honoured with a place in the Philosophical Transactions.

The limits which have been taken for the map, in respect to latitude, are the parallels of 60° north and 60° south. The number of distinct determinations within those limits, either at sea or on adjacent coasts or islands, which have been reduced and coordinated, amounts to 1480. Each determination is, in the majority of cases, a mean result of several distinct and independent observations. They are all comprised between the beginning of 1828 and the end of 1848; the commencement of 1840 being taken as the epoch of the map; and each determination being reduced to that epoch by the rate of secular change derived by comparison with the map of

the Declination in 1787, published by M. HANSTEEN in his great work, *Magnetismus der Erde*, and republished by myself in this country in the Reports of the British Association for the Advancement of Science for 1834. Of the determinations made at sea, all have been corrected for the effect of the ship's iron when observations on which the corrections must depend have been provided. I have discussed those corrections in more detail and at greater length than I might otherwise have done, on account of the practical importance attaching to this part of the subject since the introduction of steam navigation and the increased employment of iron in the construction and equipment of vessels; and in the hope and belief that the discussion may be found to have a practical as well as a theoretical value.

The 1480 determinations reduced and corrected for epoch are arranged in a general Table in Zones, each zone including 10° of latitude; the determinations comprised in each zone are arranged in the order of their longitudes, commencing always with the most westerly: they are all likewise inserted in the map, where they are expressed in degrees and decimals of a degree. For the purpose of drawing the lines of declination in general conformity with the determinations, the latter have been arranged in groups, each group having its mean geographical position at or near the point of intersection of every fifth meridian and parallel, (as far as the observations would permit,) counting from the parallel of 0° , and the meridian of 280° ; and in the more frequented parts, and where consequently the number of determinations was greatest, at or near the points of intersection of parallels and meridians distant only $2\frac{1}{2}$ degrees from each other. Each group contains all the determinations comprised within equal distances of latitude and equal distances of longitude on either side of the point of intersection; the distances being so taken that the number of determinations constituting a group should be generally from ten to twenty.

If the mean geographical position corresponding to the determinations in a group differed more than a few minutes from the latitude or longitude of the desired point of intersection, one or two determinations adjacent to, but beyond the limit, were taken into the group, or one or two pairs of determinations within the limits were combined and their mean taken instead of the separate results. This was done for the purpose of diminishing the amount of the correction to be applied to the mean declination of the group, to reduce it to the corresponding value of the declination at the point of intersection itself. The factors employed in making that reduction were derived from the map itself. The values of the declination thus obtained at the intersection of every fifth degree of latitude and longitude (as far as the determinations permitted), and at the intersection of every $2\frac{1}{2}$ degrees in the more frequented quarters, have been regarded as *elements* of the declination lines; and these lines have been drawn in accordance with the elements with only such slight deviations as were indispensable to preserve an interconformity between the lines, where it was evident that the determinations themselves were slightly discordant. The values of the Declination at the points of intersection obtained by the process of grouping are

collected in Table VIII., and are also exhibited in the Map in larger and more conspicuous figures than those which represent the determinations from which they are severally derived. The map thus contains, first, the original determinations reduced to the mean epoch; secondly, the elements, or mean values for the points of intersection, derived from the determinations; and thirdly, the lines themselves derived from the elements, so that the degree of accordance of the elements and of the lines with the sources from whence they are derived may be everywhere judged of by inspection.

The determinations employed in this Memoir have been obtained from the following sources :—

(A.) *Sea observations uncorrected for the effects of the Ship's Iron.*

1. Observations made in the corvette Krotkoi by Dr. ADOLPH ERMAN in her homeward voyage from Cape Horn to Portsmouth in 1830; extracted from ERMAN's *Reise um die Erde*.

2. Observations made on board the Beagle, Captain ROBERT FITZROY, on her outward passage from England to South America in 1831 and 1832, and whilst on the South American station, east of Cape Horn, in 1833 and 1834; and on her homeward passage in 1836 from the Cape of Good Hope to the British Channel; extracted from the published account of the voyage.

3. Observations made on board the corvette La Bonite, Captain VAILLANT, on her outward passage from Toulon round Cape Horn in 1836, and on her homeward passage in 1837 from the Cape of Good Hope to Brest; extracted from the published account of the voyage.

4. Observations made on board the frigate La Venus, Captain (since Admiral) Du PETIT-THOUARS, in her outward passage from France round Cape Horn in 1837, and in her homeward passage in 1839 from the Cape of Good Hope to Brest; extracted from the published account of the voyage.

5. Observations made by Captain (since Admiral) BERARD, on board the brig Le Voltigeur in a voyage in 1838 from Toulon to Vera Cruz, and from thence by New York to Brest; and on board the corvette Le Rhin, on her outward passage from Toulon to the Cape of Good Hope in 1842, and in her homeward passage from Cape Horn by St. Helena to Toulon in 1846; from a MS. obligingly communicated to me by Captain DUPERREY, Membre de l'Institut.

6. Observations made on board La Prevoyante by Captain JEHENNE, on a passage from the Cape of Good Hope by St. Helena to Cayenne in 1842; extracted from the *Annales Maritimes et Coloniales* for 1843.

7. Observations made in H.M.S. Curaçoa, Captain Sir THOMAS SABINE PASLEY, Bart., whilst on the South American station in 1843 and 1844; MSS.

(B.) *Sea observations corrected for the effects of the Ship's Iron.*

8. Observations made on board H.M.S. Erebus, Captain Sir JAMES CLARK ROSS, in her outward passage from England to St. Helena and the Cape of Good Hope in 1839 and 1840; MSS.

9. Observations made on board H.M.S. Thunder, Captain EDWARD BARNETT, in a passage from the Bahama Islands to the British Channel in 1841; MSS.

10. Observations made on board H.M. Ships Erebus and Terror, Captains Sir JAMES CLARK ROSS and F. R. M. CROZIER, in the (Antarctic) summer of 1842–1843, between Cape Horn and the Cape of Good Hope; MSS.

11. Observations made on board the Prince Regent transport, by Captain JOHN HENRY LEFROY, R.A., in a passage from England to Quebec in 1842; MSS.

12. Observations made in H.M. hired bark Pagoda, by Lieut. (since Commander) T. E. L. MOORE, R.N., and Lieut. (since Captain) HENRY CLERK, R.A., in a voyage from the Cape of Good Hope to the Antarctic Circle in 1845; extracted from the Philosophical Transactions for 1847.

13. Observations made on board H.M.S. Philomel, Captain BARTHOLOMEW J. SULLIVAN, in a passage from Monte Video to the British Channel in 1846; MSS.

14. Observations made on board the Hudson's Bay Company ship Prince Albert, by Lieut. (since Commander) T. E. L. MOORE, in a voyage from England to Moose Fort in Hudson's Bay and back, in 1846; MSS.

15. Observations made on board H.M.S. Rattlesnake, Captain OWEN STANLEY, in her outward passage from the British Channel to the Cape of Good Hope in 1846 and 1847; MSS.

(C.) *Land observations on the coasts and islands of the Atlantic.*

16. Observations at several points of the South American coast and of the Falkland Islands in 1832, 1833 and 1834, by Captain ROBERT FITZROY, R.N.; extracted from the Voyage of the Beagle.

17. Observations at several points of the Falkland Islands and on the South American coast and its vicinity, between 1843 and 1846, by Captain BARTHOLOMEW J. SULLIVAN, R.N.; MSS.

18. Observations during the voyage of the Chanticleer, between 1828 and 1831 at several stations on the coast of the Atlantic, by Captain HENRY FOSTER and Captain HORATIO AUSTIN, R.N.; MSS.

19. Observations at various points of the coasts adjacent to the Gulf and River St. Lawrence in the years 1828 to 1848, by Captain H. W. BAYFIELD, R.N.; MSS.

20. Observations on several points of the Feroe and Shetland Islands and of the Hebrides in 1831, and on the West Coast of Africa in 1836 and 1838, and in the Western Islands in 1843 and 1844, by Captain A. VIDAL, R.N.; MSS.

21. Observations made at several stations on the islands and coasts of the Atlantic and Caribbean Sea, from 1837 to 1840, by Captain A. MILNE, R.N.

22. Observations at several stations in Guiana in 1842 and 1843, by Sir ROBERT SCHOMBURGK, employed as Boundary Commissioner; MSS.

23. Observations at several stations in the vicinity of the River St. Lawrence in 1842, by Captain J. H. LEFROY, R.A.; MSS.

24. Observations at several stations in the British Islands in 1838, by Captain Sir JAMES CLARK ROSS, R.N.; MSS.

25. Observations (with a transportable Declinometer) at stations on the North Coast of Scotland, by Commander H. C. OTTER, R.N.; MSS.

26. Observations at several points of the coast of Western Africa in 1845 and 1846, by Captain H. M. DENHAM, R.N.; MSS.

27. Observations at several stations on the coast of the United States of America in the years 1844 to 1846, in the progress of the United States Coast Survey; extracted from the published Charts of the Survey.

28. Observations (with a transportable Declinometer) in 1848 at stations in the Gulf of St. Lawrence, by Dr. KELLY, R.N.; MSS.

29. Declinations determined at the observatories of Algiers, Brussels, Cape of Good Hope, Christiania, Dublin, Greenwich, Makerstoun, Paris, St. Helena, and Toronto in Canada; extracted from official sources: and at Rio Janeiro by Herr von HELMREICHER in 1845 with a transportable Magnetometer; MSS.

30. Declinations observed by Lieut.-Colonel GRAHAM of the United States Topographical Engineers, and by other officers of that corps, and surveyors employed under his direction in the Commission for determining the boundary between the United States and the British Possessions in North America. I am indebted to the liberality and kindness of Lieut.-Colonel GRAHAM for the communication of the manuscript of these valuable observations, which connect the determinations of Captains BAYFIELD, R.N., and LEFROY, R.A. in Canada, with those of the United States Coast Survey in New York and the more southern states.

Correction of the observations in Schedule (B.) for the effects of the Ship's Iron.

Observations in H.M.S. Erebus on her passage from England to St. Helena and the Cape of Good Hope.

When commenting in the Fifth Number of the Magnetic Contributions upon a portion of the magnetic observations of the two first years of Sir JAMES ROSS's Antarctic Expedition, which were all that at that time had reached England, I remarked that their examination had led me to the opinion, that the disturbances of the compass in the Erebus and Terror exhibited a character distinct from any which had been previously recognised, either in theoretical discussions or in practical applications. In all the investigations with which I was acquainted, in which the disturbing influence of a ship's magnetism upon her compass had been considered, and in all the remedies which had been suggested, either by the employment of counteracting forces, or by corrections to be applied to the indications of a compass where no such

artificial counteractions were employed, the magnetism of the ship had been regarded either as wholly induced by the magnetic action of the earth and as varying simultaneously with variations in the inducing cause, or as partly due to induction, and partly to the *permanent* magnetism of certain portions of the ship's iron; in which latter case the part of the disturbance occasioned by induction was considered to be variable in the manner already described; and the part occasioned by the permanent magnetism to be constant, or nearly so.

Upon the hypothesis of the whole disturbance being occasioned by induced magnetism, its amount in any particular direction of the ship's head should be the same, or nearly so, in north and south dips of equal amount, but should have opposite signs; that is to say, the disturbance which was towards the west when the north end of the needle dipped, should be towards the east when the south end of the needle dipped, and should be to the same amount: and if the further assumption were correct, that the induced magnetism of the ship changed simultaneously with changes in the terrestrial dip, as is known to be the case with soft iron, the disturbance might be altogether (at least approximately) prevented, by a counteracting mass of soft iron disposed suitably in reference to the place of the compass and to the resultant of the ship's magnetic action.

On the supposition that the disturbances were due partly to the induced magnetism of certain portions of a ship's iron, and partly to the permanent magnetism of other portions, the calculation of corrections would become more complex, as terms must be introduced to represent both a variable and a constant effect; and counteraction by means of soft iron would no longer meet the case. But a combination of permanent magnets and of soft iron, each suitably disposed, might, as was supposed, accomplish and preserve an approximate compensation, if the magnets and the permanently magnetic portion of the ship's iron maintained their magnetic relations unaltered, and if the changes of the induced magnetism of the ship were as simultaneous with changes in the terrestrial magnetism as they were presumed to be in soft iron.

The observations which were made on the disturbance of the compass needle of the *Erebus* and *Terror* in the river Thames, where the magnetic dip was about 69° *north*, and at Hobarton, where the dip was between 70° and 71° *south* (the ships in both cases having remained several months in the localities of the respective dips), showed that in the interval between the two sets of observations a change had taken place in the disturbance, corresponding in kind, and almost precisely in degree, with the hypothesis of induced magnetism. The disturbance was in the opposite direction at Hobarton to what it had been in the Thames: in the one case the north pole of the compass needle was drawn towards the fore part of the ship, and in the other case the south pole. The amount of disturbance in the one direction in the Thames, and in the opposite direction at Hobarton, was so nearly the same—the terrestrial dip having also nearly the same numerical value at the two stations, but with opposite signs,—as fully to bear out the inference, that in those two ships the chief part

if not the whole of the disturbance of the compass was occasioned by induced magnetism.

Such being the case, it might naturally have been expected that formulæ founded on M. Poisson's investigations regarding the induced magnetism of ships, which represented so well the change that had taken place between England and Van Diemen Island, would also represent the disturbance which had been found to take place at stations visited by the ships in the intermediate passage; and that the result of azimuths observed in the same geographical position of the ship, with her head on different points of the compass, would be brought into agreement with each other, at any period of the voyage, by corrections computed by the formulæ of which the variable coefficients were taken as varying with the changes of the terrestrial dip.

Such however was by no means the case. A table of corrections was computed by the appropriate formulæ for each of the thirty-two points and for every degree of north and south dip; the values of the coefficients in the formulæ being derived from the observations in the Thames and at Hobarton; and those which were variable being assumed, in conformity with the hypothesis, to vary according to the dip. On comparing this table with the observations at intermediate times and stations, it was immediately perceived that in order to suit the table to the observations, it was necessary to enter the table, not with the dip at the time and place of the observation to be corrected, but with a dip which had been passed through by the ship several days antecedently; and on a more close and general examination, this was found to be the systematic and consistent result of the whole comparison.

This result by no means contradicts the inference previously drawn, and based on the observations in the Thames and at Hobarton, viz. that the disturbances in the Erebus and Terror were chiefly if not wholly ascribable to induced magnetism; for it is quite conceivable that portions of a ship's iron, which are not permanently magnetic on the one hand, nor perfectly soft so as to undergo instantaneous change with changes of the dip on the other hand, may still derive magnetism by induction from the earth, which may conform *gradually* rather than *instantaneously* to the changes of terrestrial magnetism corresponding to changes of the ship's place; so that after an interval of greater or less duration, the variation of the magnetic state which is characteristic of induced magnetism may be as complete in such portions of the iron as in those in which the change takes place instantaneously: but it is inconsistent with the proposed counteraction of the induced portion of the disturbance by means of soft iron, unless a degree of retentive force could be given to the soft iron which should be precisely equivalent to that of the general resultant of all the iron in a ship which is not permanently magnetic; and which doubtless varies considerably in different ships.

Since 1843, when the fifth number of the Magnetic contributions was printed, I have examined the observations made in several ships which have passed from one hemisphere to the other, and have found them, without a single exception, cor-

responding in character to those of the Erebus and Terror. When a ship is rapidly changing her geographical position, or when she has just arrived in port after making a recent considerable change of geographical position, her magnetism is always in arrear (if I may so express myself) of the change which would be equivalent to the change in the terrestrial dip; but after she has remained in the same locality a period, which may be supposed to depend in some measure on the rapidity and amount of the change of dip that she has passed through, as well as on the particular degree of retentiveness of her iron, I have found in all cases that have hitherto come under my examination, that the amount of disturbance in north and south dips of equal amount becomes ultimately the same, but with the opposite sign.

The practical bearing of these conclusions is considerable. If the whole disturbance be due to induced magnetism,—and if when changes of geographical position are made, the disturbance is found to conform fully to the laws of induced magnetism after an interval which may be considered brief in comparison with a ship's frequent detention in different places, whilst during that interval it is in continual progress thereto,—permanent magnets are wholly inappropriate for the purpose of supplying a compensating force in ships making considerable changes of geographical position; and if correctly applied in the one hemisphere they may even double the error they were intended to correct when the ship is in the other hemisphere. On the other hand, the compensation by means of soft iron, if correctly applied in the one hemisphere, may become *after a time* an equally approximate compensation in the other hemisphere; but in the passage from the one hemisphere to the other, and generally when a ship is changing rapidly her geographical locality, the compensation may be very imperfect; and errors thus resulting are the more likely to be prejudicial when a compass is supposed to be compensated, because the habit of watching for them is then impaired. The counteraction of the disturbance by the introduction of a magnetic force which should at all times counterbalance that of the ship, would seem therefore to be a more complicated problem than it has been supposed to be: for neither permanent magnets, nor iron which changes simultaneously, can afford separately or conjointly suitable compensation for disturbances which are in part at least a function of time.

Nor are these conclusions without a practical bearing on the applicabilities of the formulæ which have been derived from theoretical investigations, for the purpose of supplying corrections for the disturbing influence of a ship's iron on her compass, and on other magnetical instruments employed on board ship: for it becomes necessary to take into account, in addition to the two qualities of iron previously recognised and for which terms were provided, a third portion which is of an intermediate quality between the other two, and of which the magnetism is neither permanent on the one hand, nor are its changes simultaneous with or immediately consequent on changes of the terrestrial dip. Even in the most simple case of the disturbances being occasioned chiefly or wholly by induced magnetism, the data which are

furnished by swinging a ship in harbour, even if repeated in more than one locality, must be insufficient to furnish corrections for the observations which may be made at sea in passages from port to port, if unaccompanied by experimental data furnished from time to time during the passages themselves.

Seeing therefore the importance of the conclusions to which I have been led, I have thought it desirable to collect together in one point of view on the present occasion all the observations which were made in the Erebus for the purpose of examining the disturbance of the compass, during the three years in which she was employed in the Antarctic Expedition, and to enter on a somewhat detailed discussion of them.

TABLE I.—Disturbance of the Compass in H.M.S. Erebus.

+ Implies a disturbance of the North end of the needle towards the West;
— towards the East.

Direction of ship's head.	Gillingham, September 1839.	Port Praya, November 1839.	St. Helena, February 1840.	Cape of Good Hope, April 1840.	Kerguelen Island, July 1840.	Hobarton, October 1840.	Hobarton, June 1841.	Falkland Islands, August 1842.	Cape of Good Hope, April 1843.	Direction of ship's head.
N. by w.	+1 12	+0 27	-0 02	+0 16	-0 27	-0 35	-1 28	-0 04	-0 37	N. by w.
N.N.W.	+2 01	+0 20	-0 27	+0 10	-1 08	-0 29	-2 15	-0 34	-1 04	N.N.W.
N.W. by N.	+2 10	+0 52	-0 34	+0 02	-2 07	-1 43	-2 48	-0 51	-1 15	N.W. by N.
N.W.	+3 03	+1 15	-0 40	-0 03	-2 02	-1 59	-3 09	-1 02	-1 42	N.W.
N.W. by w.	+3 28	+1 25	-1 03	-0 15	-2 27	-2 47	-3 27	-1 01	-2 01	N.W. by w.
W.N.W.	+3 51	+1 05	-0 25	-0 33	-3 12	-3 07	-4 04	-1 49	-2 35	W.N.W.
W. by N.	+4 09	+1 15	-0 29	-0 51	-3 36	-3 37	-4 47	-2 10	-2 54	W. by N.
W.	+4 19	+1 33	-0 32	-1 09	-3 41	-4 03	-5 13	-2 16	-3 09	W.
W. by s.	+4 40	+1 49	-0 12	-1 14	-3 56	-4 02	-5 11	-2 21	-3 17	W. by s.
W.S.W.	+4 03	+1 24	+0 09	-1 05	-4 06	-4 16	-4 55	-2 21	-3 09	W.S.W.
S.W. by w.	+3 24	+1 34	+0 08	-1 06	-3 47	-4 27	-4 33	-2 14	-2 52	S.W. by w.
S.W.	+2 45	+0 26	+0 04	-0 52	-3 23	-3 55	-3 54	-1 58	-2 27	S.W.
S.W. by s.	+2 08	+0 09	+0 14	-0 40	-2 34	-3 24	-3 13	-1 43	-1 52	S.W. by s.
S.S.W.	+1 34	-0 02	-0 01	-0 02	-1 53	-2 18	-2 30	-1 17	-1 12	S.S.W.
S. by w.	+0 52	+0 10	-0 09	+0 16	-0 45	-1 27	-0 34	-0 39	-0 07	S. by w.
S.	+0 28	-0 39	-0 29	+0 39	+0 22	-0 38	+0 29	0 00	+0 33	S.
S. by E.	-0 19	-0 32	-0 24	+1 14	+1 10	+0 21	+2 18	+0 44	+1 07	S. by E.
S.S.E.	-0 48	-0 42	-0 30	+1 26	+2 05	+0 39	+2 52	+1 13	+1 45	S.S.E.
S.E. by s.	-1 23	-0 25	-0 25	+1 41	+2 50	+1 24	+3 37	+1 41	+2 08	S.E. by s.
S.E.	-1 53	-1 09	-0 21	+2 53	+3 21	+1 56	+4 20	+1 55	+2 31	S.E.
S.E. by E.	-2 21	-1 25	-0 21	+2 01	+3 51	+1 46	+4 46	+2 07	+2 51	S.E. by E.
E.S.E.	-2 50	-1 18	-0 06	+1 43	+4 12	+3 29	+5 31	+2 19	+3 15	E.S.E.
E. by s.	-3 17	-1 44	+0 13	+1 34	+3 53	+3 23	+5 06	+2 16	+3 10	E. by s.
E.	-3 42	-1 56	+0 32	+1 15	+3 48	+3 50	+4 53	+2 07	+2 46	E.
E. by N.	-4 53	-2 40	+0 55	+1 02	+3 31	+4 06	+4 32	+1 54	+2 30	E. by N.
E.N.E.	-3 46	-2 47	+0 57	+1 51	+3 02	+3 41	+3 52	+1 44	+2 15	E.N.E.
N.E. by E.	-3 18	-2 30	+0 48	+0 31	+2 13	+3 33	+3 31	+1 16	+1 59	N.E. by E.
N.E.	-2 59	-2 10	+1 11	+0 22	+2 10	+3 23	+2 54	+0 51	+1 33	N.E.
N.E. by N.	-2 16	-2 12	+0 52	+0 11	+1 32	+3 01	+2 25	+0 41	+1 15	N.E. by N.
N.N.E.	-1 39	-1 53	+0 28	+0 01	+1 01	+2 37	+1 15	+0 41	+0 43	N.N.E.
N. by E.	-0 49	-1 17	+0 17	+0 24	+0 23	+2 17	+0 23	+0 28	+0 15	N. by E.
N.	+0 06	-0 56	+0 05	+0 24	-0 08	+1 12	+0 41	+0 13	-0 20	N.

From the observations in September 1839, at Gillingham in the River Thames (where the ship had been stationary for many months), a table was formed by the well-known formulæ derived from Poisson's fundamental equations applicable to in-

duced magnetism, giving the corrections which, on that hypothesis, and on the further supposition that the changes in the induced magnetism of the ship were simultaneous with those of terrestrial magnetism, should have corresponded with the disturbance on each of the thirty-two points of the compass under every degree of the terrestrial dip. On examining, by means of this table, the number of degrees of dip by which it was necessary to go back from the dip at the place of observation, in order to obtain from the table corrections corresponding to the disturbances at the stations where the ship was subsequently swung, I find that at Port Praya, where the dip was $+45^{\circ} 32'$, and after a passage of thirty-six days from the British Channel, where the dip was about $+69^{\circ}$, that the ship's magnetism, instead of corresponding to a dip of $+45^{\circ} 32'$, did in fact correspond to a dip of about $+51^{\circ}\frac{1}{2}$; the arrear being about 6° .

At St. Helena, where the dip was about -20° , and where the ship had arrived after a passage of about seventy-nine days from Port Praya, during which she had passed from north into south dip, the arrear was between thirty and forty degrees—the tabular corrections for 20° *north* dip corresponding more nearly with the differences of the azimuths observed at St. Helena with the ship's head on different points, than did the tabular corrections for 20° *south* dip; so that the effect of the employment of the latter would manifestly have been to have increased the evil which they were intended to correct.

At the Cape of Good Hope, where the dip was -53° , and after an interval of thirty-eight days from her departure from St. Helena, the arrear appears to have been about twelve degrees.

At Kerguelen Island, where the ship arrived after a passage of forty days from the Cape, but where she remained in harbour about fifty days before the disturbance experiments were made, the tabular corrections had overtaken the terrestrial dip, although the latter had increased from -53° at the Cape to -70° at Kerguelen Island; above one hundred days had elapsed between the experiments in -53° and those in -70° of dip, of which less than half the number were occupied in making the passage from the dip of -53° to that of -70° , and the rest were passed at the anchorage in -70° . From Kerguelen Island the Erebus proceeded to Hobarton, where the dip was the same, within a degree, as at Kerguelen Island, being $-70^{\circ} 40'$, and where, as I have already stated, the disturbances were found to be, both in kind and amount, very nearly such as might have been computed beforehand from the observations in the Thames, by the formulæ which apply to induced magnetism susceptible of instantaneous change, the tabular corrections compensating the disturbances within the limits of the usual errors of observation.

From Hobarton the Erebus proceeded, in November 1840, to the high geographical latitudes of the southern hemisphere, and remained for some months in south dips much exceeding that at Hobarton, to which station she returned in April 1841. On the 29th of June 1841, being about eleven weeks after her arrival in harbour, observations were made on the disturbances of the compass on each of the thirty-two points.

The arrear was now found to be on the side of the higher dips, though probably to a much less amount than might have been the case had the observations been made at an earlier period after her return; the tabular corrections which most nearly correspond to the observed disturbances are those of the dip $-71^{\circ} 28'$ instead of $-70^{\circ} 40'$.

The expedition left Hobarton a second time in July 1841, passing the following (Antarctic) summer again in the regions of high southern dip, and returning to the Falkland Islands in April 1842, where the dip was between -52° and -53° ; the observations on the disturbances of the compass were made in August, being about four months after the ship arrived; an arrear however still remained on the side of the high dips in which several months had been passed previously to her arrival; the tabular corrections corresponding to the disturbances are those belonging to a dip of between -56° and -57° , instead of between -52° and -53° .

From the Falkland Islands the Erebus sailed once more for the high latitudes in December 1842, returning, on this occasion, to the Cape of Good Hope in April 1843. She had now been in localities of higher southern dip than that of the Cape during nearly the whole of the three years which had elapsed since her former visit to the Cape, and she had passed the three months immediately antecedent to her second arrival, in dips varying from -60° to -65° , that of the Cape at the same period being $-53^{\circ} 30'$. The disturbances of the compass were examined on the 20th of April, being a very few days after her arrival at the Cape, and I find that the tabular corrections corresponding to them are those belonging to a dip of about $-63^{\circ} 30'$. The arrear on this occasion was therefore about 10° on the side of the higher dips, it having been about 12° on the side of the lower dips when the ship arrived, in 1840, at the same station from localities of lower dip.

The experiments at the Cape in April 1843 were the last, I understand, that were made in the Erebus during the progress of the voyage, for the purpose of examining the influence of the ship's iron on her compass by the usual process of swinging the ship: and by an unfortunate misunderstanding, the repetition of the experiments on the return of the vessel to the Thames, which had been ordered by the Admiralty, and was fully designed to have taken place by Sir JAMES ROSS, was also omitted. It appears therefore that in every instance in which the proper experiments were made, the disturbances were found to be consistent with the hypothesis of an induced magnetism conforming *gradually* to the changes in the terrestrial magnetic phenomena occasioned by the changes in the ship's geographical position, but not changing *simultaneously* with those changes.

But whether the hypothesis of a gradual conformity of a part of the ship's iron, instead of an instantaneous conformity of the whole, to changes of the terrestrial dip, be or be not the true explanation of the facts which have been thus pointed out, the facts themselves are highly deserving of consideration by those to whom the correction of compass errors is of consequence; the anomalies which present themselves to any previously entertained systematic view are of too large amount, as well as too consistent on the different points, both in the observations at sea and in harbour, to

be ascribed either to errors of observation or to accidents; and the prominence which has been given to them on this occasion will not be misplaced, if it should serve to impress upon those who have the power of carrying out practical suggestions, the importance of giving a sufficient trial to the method proposed by Mr. ARCHIBALD SMITH in the eighth number of the *Magnetic Contributions*, whereby the variable term in the correction formula may be at all times determined experimentally at sea, by deflections of the compass needle obtained with the ship's head on two opposite points of the compass. The observations needed are extremely simple, require no unusual circumstances of weather and no reference to celestial objects, and need occupy but a very few minutes.

Mr. SMITH has shown that the variable term may also be determined at sea by observations of azimuths with the ship's head placed on the points of greatest disturbance; but the deflection method promises to be even more simple than that by azimuths. By the addition of a brass bar attached at right angles to the prism and sight vane of the azimuth ring of the standard compass, deflecting magnets may be temporarily fixed at a convenient distance from the compass needle, and the deflections measured with the ship's head on two opposite points; as was first practised by Captain (then Lieut.) HENRY CLERK, R.A., F.R.S., in his Antarctic voyage*.

If this method of determining the variable coefficient in the correction formulæ be found to answer its purpose on a further and sufficient trial, the correction of the disturbances occasioned by the ship's iron might be still further simplified by the formation of tables of each term for every probable value of the coefficients, when the only calculation remaining to be made would be the addition of the quantities to be taken out from the tables. In wooden ships, two terms, and consequently a single addition, would probably, in most cases, be sufficient for the whole amount of the correction†.

With reference to the corrections which we have now occasion to employ for the declinations observed in the *Erebus* in her passage from England to the Cape of Good Hope, we have the following values of the constant coefficients A, D and E in the formula (6.)‡, derived from the observations on the thirty-two points of the compass, at the several stations at which these observations were repeated, by the equations (16.), (19.) and (20.)§.

	A.	D.	E.
Gillingham	+15	+16	- 3
Port Praya	-23	+24	- 8
St. Helena	—	+27	+ 3
Cape of Good Hope, 1840	+23	+23	+15
Mean	+ 5	+22	+ 2

* Philosophical Transactions, 1846, p. 347.

† Whilst these pages were in the press, tables such as are here referred to have been drawn up and printed under the direction of the Admiralty in a tract entitled "Directions for ascertaining at any time, whether at sea or in harbour, the *changing* part of the Deviation in the Compass occasioned by the Ship's Iron."

‡ Philosophical Transactions, 1846, p. 348.

§ Ibid. pp. 350 and 351.

From the small amount of the mean value of A, we may infer that the iron which affected the compass was distributed systematically, or nearly so, on either side of the midship line; the variations in the values at different stations are greater than could be wished, but they have no regular appearance, and may probably be due to accidental circumstances, which in such experiments cannot possibly be wholly guarded against. Considering the small mean value of the coefficient, and the extent of its variations on the different occasions, we may dispense altogether with its further consideration. A similar remark will apply to E; since if its mean value were employed, the maximum effect on the correction would in no instance exceed two minutes. But it is otherwise with regard to D, which has a very sensible value in respect to the whole amount of the correction, especially in low latitudes; and the deductions in regard to it are tolerably consistent at the different stations; I have taken its mean value at $+22'$.

For the variable coefficients B and C, we have not the advantage of possessing the experimental determinations at sea, which have been pointed out as possible to be made on future occasions with the deflecting apparatus; and we must therefore obtain these also from the observations in harbour in the best manner that circumstances will admit.

Commencing with B as the more important, we have the following values at the four stations for the passages between which the corrections are required. (The values are expressed by the sines of the respective arcs):—

	Dip.	B.
Gillingham, September 20, 1839	$+69^{\circ} 05'$	$+\cdot 0675$
Port Praya, November 18, 1839	$+45^{\circ} 32'$	$+\cdot 0324$
St. Helena, February 8, 1840	$-20^{\circ} 06'$	$+\cdot 0073$
Cape of Good Hope, April 4, 1840	$-53^{\circ} 02'$	$-\cdot 0219$

If from these values of B we seek intermediate values corresponding to intermediate dips or times, we are obliged, for the reasons already stated, to have recourse to some more or less arbitrary supposition. It has been already shown that the intermediate values cannot be computed directly from the observations of the dip; and if the explanation which has been proposed be correct, it may not be unreasonable to regard the variation of this coefficient as a function of the time elapsed rather than of the change of dip. In two of the three passages at least, viz. from the British Channel to Port Praya and from St. Helena to the Cape, this might be the more safely assumed, because the ship's progress with respect to the terrestrial dip was uninterrupted, in the first case to diminishing north dips, and in the second to diminishing south dips. In the first case we have a change in B of $\cdot 0351$ in fifty-nine days, or $\cdot 00059$ per diem, and in the second of $\cdot 0292$ in fifty-six days, or $\cdot 00052$ per diem. In the voyage from Port Praya to St. Helena the progress in respect to the change of dip was uninterrupted from the period of departure from Port Praya on the 21st of November 1839 to the 2nd of January 1840, the dip having diminished in that interval from $+45^{\circ} 32'$ at Port Praya to between -29° and -30° . But from the 2nd of January the ship, in beating

up to St. Helena, gradually though interruptedly, diminished the southerly dip, which at St. Helena is about -20° . The 2nd of January may therefore be regarded as dividing this part of the voyage into two portions in respect to the changes of B. As the daily rates of change deduced above for the passages from the Thames to Port Praya and from St. Helena to the Cape ($\cdot 00059$ and $\cdot 00052$) differ so little from each other, we may not unreasonably take their mean as applicable to the first division of this part of the voyage, or for that division in which the change of dip was continuous and uninterrupted. This gives as the value of B on the 2nd of January $+\cdot 0074$. Now at St. Helena we find it by experiment $+\cdot 0073$; on this assumption consequently the magnetism of the ship would have remained nearly stationary from the 2nd of January to the arrival at St. Helena, which is by no means an improbable supposition.

We may derive intermediate values of C in a similar manner*. This coefficient is however of very minor importance.

It will of course be understood that this mode of deriving these coefficients is one which would only be adopted in the absence of more satisfactory data; and fortunately in the part of the globe for which the corrections are required the values of B and C are less significant than in the higher latitudes. The observations themselves, however, furnish a test by which the appropriateness of this or of any other hypothesis proposed for their correction may be judged, viz. by the measure of agreement into which the corrections bring observations made on the same day or near the same spot with the ship's head on different points. Without entering into details, it may be stated, generally, that the corrections computed by the formula (6.) with the value of the coefficients as above stated appear to bear this test very satisfactorily; the observations thus corrected becoming much more accordant with each other than either when uncorrected, or than when corrected by the same formula with its variable coefficients made to vary in accordance with the dip.

Determinations in H.M.S. Erebus, in 1842 and 1843, between Cape Horn and the Cape of Good Hope.

For the corrections of the declinations observed in the Erebus in 1842–43 between Cape Horn and the Cape of Good Hope, we have seen, p. 184, that the value of the constant coefficient D as derived from the experiments in the River Thames and Port Praya in 1839, and at St. Helena and the Cape of Good Hope in 1840 was $+22'$; for the experiments at the Falkland Islands in August 1842, $D = +23'$, and from those at the Cape in 1843, $+24'$; I have made no alteration therefore in the general table of corrections which was computed, as already noticed, with $+22'$.

For the variable coefficients B and C we possess no other data, for the period now under consideration, than the values derivable from the experiments in the Falk-

* Values of C derived from the harbour observations:—

Gillingham	$-\cdot 0036$
Port Praya.....	$-\cdot 0046$
St. Helena.....	$-\cdot 0033$
Cape of Good Hope.....	$-\cdot 0044$

land Islands in August 1842, and at the Cape of Good Hope in April 1843; from these we obtain,—

At the Falkland Islands $B = -\cdot 0377$; $C = +\cdot 0009$.

At the Cape of Good Hope $B = -\cdot 0517$; $C = -\cdot 0040$.

It has been already noticed that the term $\sqrt{B^2 + C^2}$, derived from these values, was on both occasions numerically greater than would have been assigned from the dips at the respective stations, and the values of the same coefficients at other stations where the ship had remained sufficiently long for the full development of the changes in its induced magnetism corresponding to changes of geographical position. The experiments at the Falkland Islands and at the Cape of Good Hope, afford however the best indication which we possess of the magnetic state of the ship in the interval comprised between their respective dates, and must be taken as the foundation of the corrections during that interval. In September 1842 the *Erebus* quitted Port Louis in the Falkland Islands for Cape Horn, and after remaining some weeks at St. Martin's Cove, where the dip was between -58° and -59° , returned in November to the Falkland Islands; from whence she sailed immediately afterwards to resume the magnetic survey of the higher latitudes, arriving at the Cape of Good Hope in April 1843. In the whole interval between August 1842 and April 1843, the ship was at no time in a lower dip than that at the Falkland Islands, and we may presume therefore, with much probability, that the $\sqrt{B^2 + C^2}$ was in no part of the interval less than its value at Port Louis. We have thus a minimum value for this term. During January 1843 the dips observed in the *Erebus* ranged, in different localities, from -60° to -63° . In February from -58° to -62° ; in the first week of March a favourable opportunity presenting itself for pressing to the southward, the dip increased to between -65° and -66° ; but from the 8th of March it progressively diminished until the arrival at the Cape on the 6th of April. The experiments made at the Cape on the 20th of that month gave a value of $\sqrt{B^2 + C^2}$, corresponding to -63° , or thereabouts. It is not probable from this review that $\sqrt{B^2 + C^2}$ was at any time *much* higher than it was found at the Cape; it may possibly have been a little higher for some days in March, but I have thought it safer to keep within the limits which were actually observed than to assume a conjectural maximum; and in correcting the declinations of this period I have accordingly taken the value of $\sqrt{B^2 + C^2}$ observed at Port Louis as applicable until the *Erebus* sailed for the higher latitudes in December 1842, and have then increased it uniformly and progressively with the time until the first week in January 1843, when the dip was -63° , corresponding to the highest observed value of $\sqrt{B^2 + C^2}$; and I have used that value thenceforward until the arrival at the Cape, where it accorded with the experiments.

By the following memorandum with which I have been furnished by Mr. TUCKER, Master of the *Erebus*, it appears that the standard compass of that ship had an index error of considerable amount during this portion of the voyage. I have not been able to learn anything satisfactory in regard to the cause of this error, which did not exist when the compass was tried by Captain JOHNSON, R.N., before the expedition

quitted England; nor could it have existed when the ship was swung in the River Thames, at Port Praya, or at the Cape of Good Hope in 1840, or it would have appeared to its full amount in the value derived for the coefficient A. The evidence, however, afforded by the consistent results of the several trials that were made both at the Falkland Islands and at St. Martin's Cove in 1842, and both on shore and on board, leaves no doubt of the existence of index error at that period.

I cannot find that any trial was made of the index error of this compass on the arrival at the Cape in April 1843; but in the neighbourhood of the Cape the Erebus crossed the track of the Pagoda, the observations of which ship are published in the Philosophical Transactions for 1846, Part III., and the declinations observed in the two ships agree when the index error observed at the Falkland Islands is employed for the compass of the Erebus, but would disagree to an amount of nearly two degrees if that correction were not employed.

Mr. TUCKER's memorandum is as follows:—

“The compass error of the standard compass of the Erebus was ascertained at Port Louis in the Falkland Islands, on the 13th of August 1842, in the following manner. The compass with its card CCH was taken on shore, and its tripod was fixed over the spot on which the transit had been established; the bearings of the N. and S. meridian marks were then taken with the compass as follows:

North mark N. $15^{\circ} 36' 8''$ W.

South mark S. $15^{\circ} 40'$ E.

The true declination was $17^{\circ} 33'$ E. in the month of August by the declinometers of the observatory; the error of the standard compass was therefore $17^{\circ} 33' - 15^{\circ} 38' 5'' = 1^{\circ} 54' 5''$, or the north end pointed $1^{\circ} 54' 5''$ to the west of the true magnetic north. The compass was taken again on shore at the same place in September and December, and at St. Martin's Cove in November, and the compass error was tried in the same way, and was found on all those occasions to be within a few minutes the same as that above stated. Also when the ship was swung at Port Louis on the 19th of August 1842, the sum of the declinations observed with the standard compass in its usual place on board, on the thirty-two points, divided by thirty-two, made a mean declination of $-15^{\circ} 39' 3''$; the true magnetic declination in the same month by the declinometer was $-17^{\circ} 33'$, whence the compass error equals $1^{\circ} 53' 7''$ to the westward of north.”

In conformity with this memorandum I have employed $-1^{\circ} 54'$ as an index correction from August 1842 to April 1843.

Determinations in H.M.S. Terror, in 1842 and 1843, between Cape Horn and the Cape of Good Hope.

The disturbance of the compass of the Terror was examined at the Falkland Islands on the 17th of August 1842, and at the Cape of Good Hope on the 20th of April 1843, by azimuths observed with the ship's head successively on the thirty-two points. Assuming the mean of the azimuths on the thirty-two points to give the true

declination (*i. e.* the coefficient $A=0$), the disturbance on the several points are as follows, viz.—

TABLE II.—Disturbance of the Compass in H.M.S. Terror.

Ship's head.	Disturbances towards the west.		Ship's head.	Disturbances towards the west.	
	Falkland Islands, Aug. 17, 1842.	Cape of Good Hope, April 20, 1843.		Falkland Islands, Aug. 17, 1842.	Cape of Good Hope, April 20, 1843.
N.	+0 18	—0 58	S.	—0 16	+0 44
N. by W.	—0 02	—1 3	S. by E.	—0 08	+1 56
N.N.W.	—0 17	—1 6	S.S.E.	0 00	+3 1
N.W. by N.	—0 48	—1 22	S.E. by S.	+0 47	+3 2
N.W.	—1 19	—2 20	S.E.	+1 35	+3 5
N.W. by W.	—1 49	—2 12	S.E. by E.	+2 17	+3 3
W.N.W.	—1 47	—3 14	E.S.E.	+3 04	+3 4
W. by N.	—2 07	—3 35	E. by S.	+2 33	+3 22
W.	—2 30	—3 36	E.	+2 46	+2 35
W. by S.	—2 21	—3 8	E. by N.	+2 27	+2 27
W.S.W.	—2 12	—2 35	E.N.E.	+1 58	+1 53
S.W. by W.	—2 21	—2 1	N.E. by E.	+1 39	+1 23
S.W.	—1 33	—1 33	N.E.	+1 13	+1 8
S.W. by S.	—1 05	—1 26	N.E. by N.	+1 11	+1 1
S.S.W.	—0 47	—1 22	N.N.E.	+0 34	+0 30
S. by W.	—0 45	—0 9	N. by E.	+0 27	—0 27

From these we have $D=+17'$ and $E=+6'$; also $\sqrt{B^2+C^2}=-\cdot040$ at the Falkland Islands, and $-\cdot054$ at the Cape. For the reasons assigned in the case of the Erebus, I have taken $-\cdot040$ as applicable until the Terror sailed to the higher latitudes in December 1842, and have then increased it uniformly and progressively with the time until the first week in January 1843, when the south dip was greatest; and from this date until the arrival at the Cape I have employed $-\cdot054$ (observed at the Cape), which was the greatest observed value of this term.

The compass employed in this portion of the Terror's voyage was made by CUMMINS, and had two cards, a light and a heavy one, the latter being used exclusively in very bad weather. In a memorandum which I received from Captain CROZIER, it is stated that the index errors were examined at the observatory in the Falkland Islands on the 23rd of August 1842, and found to require corrections, with the light card of $+1^\circ 13'$, and with the heavy card of $-0^\circ 40'$. The cause of these errors does not appear to have been examined either during the voyage or after the return to England. The error of the light card, which was the one generally used, is in the opposite direction to the error assigned to the compass of the Erebus examined at the same time; and it is remarkable that throughout this portion of the voyage in which the two ships were always in company, the declinations observed in the Erebus are generally still more easterly than those of the Terror after the corrections for the compass error are applied, and that this disagreement would be greater if the corrections were not so applied. I have therefore felt the less hesitation in admitting and employing compass errors of such magnitude, the cause of which does not appear to have undergone investigation; but I cannot avoid expressing the hope that as the state of

the compasses supplied to Her Majesty's navy has at length received from the Admiralty the attention which was so long and so greatly wanted, and since a department has been expressly instituted for their proper examination and care, errors of such magnitude, where no such errors need exist, may no longer be found to occur*.

I would also take this occasion to remark, that in examining the disturbance caused by the ship's iron at the spot in which the standard compass is placed by the process of swinging the ship, the standard compass itself should be employed, and not, as appears to have been sometimes done, another compass substituted for that particular occasion. When compass errors exist, the coefficient A derived from the observations with one compass are inapplicable to the observations of another compass having a different compass error. Also, when circumstances permit, it is preferable that the actual disturbance on each point should be ascertained independently of that on other points, as is done when the bearing of an object is observed whose correct magnetic bearing is known or subsequently determined. Disturbances supposed to be ascertained, by comparing azimuths observed on each point with the means of the azimuths observed on all the points, are liable to be in error to the full amount of the value of the coefficient A, whether that value arise from compass error or from the disturbing influence of the iron.

Determinations made in H.M.S. Thunder, in a passage from Nassau, New Providence, to England in 1841, by Captain EDWARD BARNETT, R.N.

The observations in the Thunder were made with one of the Admiralty compasses, fitted as a standard compass. The disturbance occasioned by the iron was examined at Nassau in March 1841, immediately after the arrival of the ship from England, and at Gillingham in the River Medway, about the 1st July of the same year on her return to England. The observations were as follows, viz.—

TABLE III.—Disturbance of the Compass in H.M.S. Thunder.

Ship's head.	Disturbances towards the west.		Ship's head.	Disturbances towards the west.	
	Nassau.	Gillingham.		Nassau.	Gillingham.
N.	—0° 5'	—0° 15'	S.	+0° 23'	+0° 38'
N. by W.	+1 19	+1 00	S. by E.	+0 1	—1 17
N.N.W.	+1 16	+1 59	S.S.E.	—0 34	—1 25
N.W. by N.	+2 18	+3 38	S.E. by S.	—0 43	—3 35
N.W.	+2 48	+5 02	S.E.	—1 22	—4 2
N.W. by W.	+3 32	+6 2	S.E. by E.	—2 1	—4 23
W.N.W.	+3 53	+6 6	E.S.E.	—2 36	—5 19
W. by N.	+3 45	+6 12	E. by S.	—3 9	—5 50
W.	+3 52	+6 15	E.	—3 19	—6 16
W. by S.	+3 44	+6 51	E. by N.	—3 26	—5 44
W.S.W.	+3 21	+5 15	E.N.E.	—3 34	—6 28
S.W. by W.	+2 59	+5 42	N.E. by E.	—3 12	—5 57
S.W.	+2 37	+5 2	N.E.	—2 52	—4 46
S.W. by S.	+1 55	+3 32	N.E. by N.	—2 16	—3 48
S.S.W.	+1 52	+2 40	N.N.E.	—1 56	—2 51
S. by W.	+0 34	+2 5	N. by E.	—0 27	—0 51

* When the Erebus left England the prism by which the graduation of the card of the Admiralty compasses

From these we obtain $A = +8'$; $D = +14'$; $E = -2'$; B at Nassau $= +\cdot062$, and at Gillingham $+ \cdot111$; C at Nassau $= -\cdot006$, and at Gillingham $= -\cdot007$.

From Nassau the Thunder passed immediately into dips on the coast of America higher than those in the subsequent portion of her voyage, or than the dip at Gillingham. The variable part of the disturbance therefore, probably, increased rapidly after leaving Nassau, and may have been greater whilst the ship was off the coast of America than when examined at the termination of the voyage. Having no intermediate data, however, I have not ventured to exceed the maximum observed value of $\sqrt{B^2 + C^2}$, but have commenced with $+ \cdot062$, the observed value at Nassau on the 1st of May, and increased it uniformly with the time to $+ \cdot111$, the observed value at Gillingham, and have supposed it to have attained the latter value on or about the 1st of June, when the ship had been a fortnight in dips exceeding that in the Thames.

Determinations in the Prince Regent Transport, on the passage from England to Canada in 1842, by Lieutenant (since Captain) J. H. LEFROY, R.A.

These observations were made by Lieut. LEFROY when proceeding to Canada in 1842 to take charge of the Magnetic Observatory at Toronto. By direction of the Hydrographer, Lieut. LEFROY was furnished with one of the Admiralty compasses, which was fixed as a standard in the usual manner. The Prince Regent was swung at Greenhithe by Captain JOHNSON, R.N., from whom I received the following table of deviations.

TABLE IV.—Disturbance of the Compass in the Prince Regent Transport.

Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.
N. by w.	$+0\ 45$	w. by s.	$+2\ 40$	s. by E.	$+0\ 05$	E. by N.	$-2\ 00$
N.N.W.	$+1\ 55$	w.s.w.	$+2\ 20$	S.S.E.	$-0\ 10$	E.N.E.	$-1\ 45$
N.W. by N.	$+2\ 05$	s.w. by w.	$+2\ 05$	S.E. by s.	$-0\ 35$	N.E. by E.	$-1\ 35$
N.W.	$+2\ 15$	s.w.	$+2\ 00$	S.E.	$-0\ 35$	N.E.	$-1\ 05$
N.W. by w.	$+2\ 15$	s.w. by s.	$+1\ 35$	S.E. by E.	$-1\ 05$	N.E. by N.	$-0\ 25$
w.N.W.	$+2\ 25$	s.s.w.	$+1\ 15$	E.S.E.	$-2\ 00$	N.N.E.	$-0\ 15$
w. by N.	$+2\ 30$	s. by w.	$+1\ 05$	E. by s.	$-2\ 05$	N. by E.	$-0\ 10$
w.	$+2\ 25$	s.	$+0\ 25$	E.	$-2\ 05$	N.	$+0\ 05$

From this table we have the following values of the coefficients:—

$$\begin{array}{ll}
 \text{Permanent coefficients} & \left\{ \begin{array}{l} A + 27' \\ D + 5 \\ E + 10 \end{array} \right. \\
 \text{Variable coefficients} & \left\{ \begin{array}{l} B + \cdot0389 \\ C - \cdot0001 \end{array} \right.
 \end{array}$$

was read, had a motion of adjustment to suit different eyes. An adjustment of this nature was found liable to introduce errors, and has since been discontinued. The prisms are now fixed, immoveably, at a distance from the card adapted for eyes of ordinary vision.

Circumstances did not permit the Prince Regent to be swung on her arrival at Quebec, and we have no other means of assigning the variations of B (C being so small that it may be disregarded) than by assuming it to have varied as the tangent of the dip, which increased from 69° in the Thames to 79° at the entrance of the River St. Lawrence. Upon this supposition $B = \frac{.0389 \tan \theta'}{\tan 69^\circ} = .015 \tan \theta'$, θ' being the dip at the place of observation; the deviations on the several points in different dips are then given by

$$\sin \delta = 27' + .0149 \tan \theta' \sin \zeta' + 5' \sin 2\zeta' + 10' \cos 2\zeta',$$

and the corrections have been calculated accordingly.

They appear generally to reconcile the results of the observations on the different courses very satisfactorily.

Determinations in H.M.S. Philomel, in a passage from Monte Video to England in 1846, by Captain SULIVAN, R.N.

The observations of Captain SULIVAN, R.N. were made in a passage from Monte Video to England in 1846 in H.M.S. Philomel. The error of the compass with the ship's head on different points was examined at Monte Video on the 14th of September 1844, and at Plymouth on the 10th of June 1846, as follows:—

TABLE V.

Disturbance of the Compass in H.M.S. Philomel, Monte Video, September 14, 1844.

Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.
N.	−0 57	w.	−0 40	s.	+0 16	E.	+0 03
N. by w.	−0 58	w. by s.	−0 50	s. by E.	+0 39	E. by N.	−0 12
N.N.W.	−0 56	w.s.w.	−0 48	s.s.E.	+0 49	E.N.E.	−0 26
N.W. by N.	−0 50	s.w. by w.	−0 38	s.E. by s.	+0 55	N.E. by E.	−0 26
N.W.	−0 49	s.w.	−0 40	s.E.	+0 55	N.E.	−0 22
N.W. by w.	−0 50	s.w. by s.	−0 25	s.E. by E.	+0 55	N.E. by N.	−0 29
w.N.W.	−0 40	s.s.w.	−0 10	E.s.E.	+0 43	N.N.E.	−0 45
w. by N.	−0 43	s. by w.	+0 03	E. by s.	+0 22	N. by E.	−0 55

Plymouth, June 10, 1846.

Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.
N.	−0 20	w.	+1 27	s.	−0 55	E.	−4 32
N. by w.	−0 19	w. by s.	+1 58	s. by E.	−1 09	E. by N.	−4 36
N.N.W.	−0 12	w.s.w.	+0 46	s.s.E.	−1 37	E.N.E.	−4 07
N.W. by N.	+0 30	s.w. by w.	+0 34	s.E. by s.	−2 02	N.E. by E.	−4 34
N.W.	+0 52	s.w.	+0 33	s.E.	−1 20	N.E.	−3 16
N.W. by w.	+2 13	s.w. by s.	+0 11	s.E. by E.	−1 27	N.E. by N.	−3 12
w.N.W.	+2 39	s.s.w.	+0 05	E.s.E.	−2 47	N.N.E.	−2 11
w. by N.	+2 30	s. by w.	−0 30	E. by s.	−3 37	N. by E.	−1 26

The mean values of A, D and E, from the preceding observations, are $A = -35'$; $D = +26'$; and $E = +2'$. B at Monte Video $= -0094$; and at Plymouth $+0480$; C -0095 at Monte Video, and -0031 at Plymouth. Assuming the values of B to have been the same when the *Philomel* left Monte Video for England in April 1846 as when she was swung at that station in September 1844, and that its alteration in the passage between Monte Video and Plymouth was uniform in respect to time, we have the change in the variable term of the correction from -013 on the 27th of April 1846 to $+048$ on the following 10th of June; being at the rate of $+0014$ for each day. The corrections have been applied in accordance with these values of the coefficients.

Determinations in the Hudson's Bay Company's ship the Prince Albert, in a passage from England to Hudson's Bay and back, in 1846, by Lieut. (since Commander) T. E. L. MOORE, R.N.

The observations of Lieut. T. E. L. MOORE, R.N., were made in a voyage from the Thames to Moose Fort in Hudson's Bay and back in the summer of 1846, in the Hudson's Bay Company's ship "*Prince Albert*," in which ship Lieut. MOORE embarked by direction of the Admiralty for the purpose of making magnetic observations in compliance with a recommendation to that effect from the Royal Society.

Lieut. MOORE was supplied with one of the Admiralty compasses fixed as a standard compass; the ship was swung at Greenhithe on the 4th of June 1846 (before her departure from the Thames), and the influence of the iron examined on the eight principal points of the compass as follows:—

TABLE VI.—Disturbance of the Compass in the Hudson's Bay Company's ship *Prince Albert*.

Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.
N.	$-0^{\circ} 48'$	w.	$+1^{\circ} 12'$	s.	$+0^{\circ} 20'$	E.	$-1^{\circ} 30'$
N.W.	$+1^{\circ} 00'$	s.w.	$+0^{\circ} 40'$	S.E.	$-0^{\circ} 40'$	N.E.	$-1^{\circ} 10'$

From whence we obtain $A = -11'$; $D = +12'$; $E = -2'$; $B = +0236$; $C = -0099$; the (approximate) inclination being $68^{\circ} 52'$.

On the 26th and 27th of August following, the "*Prince Albert*" being then at the anchorage at Moose Fort in Hudson's Bay, her head was placed successively on seven of the same points (N.W. being omitted on account of difficulties arising from the strength of the tide), and the bearing of an object ten miles distant was observed with the head on each point.

The bearings were as follows:—

N.	S. 65° 00' W.	S.	S. 65° 00' W.
N.W.	————	S.E.	S. 63 40 W.
W.	S. 67 00 W.	E.	S. 62 00 W.
S.W.	S. 66 20 W.	N.E.	S. 62 10 W.

The correct magnetic bearing of the distant object from the ship (or that which would have been shown by the ship's compass with her head on each of the points if there had been no local attraction) does not appear to have been observed; we can obtain from the observations therefore only the *differences* of the bearings on the different points. From these we have the half difference of the bearings at east and west, $2^{\circ} 30' = (\text{nat. sine } \cdot 0436) = \sqrt{B^2 + C^2}$ at Moose Fort, where the (approximate) inclination $= 81^{\circ} 00'$. Taking the value of the $\sqrt{B^2 + C^2}$ at Greenhithe in conformity with the observations there at $\cdot 025$, and assuming that its variation should be as the tangent of the inclination, we should have $\frac{\cdot 025 \tan 81^{\circ} 00'}{\tan 68^{\circ} 52'} = \cdot 062$ as its value at Moose Fort, if the change in the induced magnetism of the ship had kept pace with the change in the terrestrial dip. Here, as in other cases, the variation of $\sqrt{B^2 + C^2}$ was in arrear of the change of the inclination, since the observed value $\cdot 0436$ corresponds to a dip of only $77^{\circ} 13'$.

The whole amount of the deviation in the “Prince Albert” is, however, so extremely small in comparison with vessels of war (the extremes at the east and west points not exceeding $1^{\circ} \frac{1}{2}$ at the Thames and $2^{\circ} \frac{1}{2}$ at Hudson's Bay), that we should obtain a sufficient approximation to the true variation of this term, whether we assumed it to vary with the change of dip, or uniformly with the lapse of time. I have taken the latter as the more convenient and ready mode; increasing the coefficient from $+\cdot 025$ on the 4th of June $\cdot 0002$ per diem, to $+\cdot 0436$ on the 26th of August, and diminishing it at the same rate from the 9th of September, on which day the Prince Albert began to lower the dip on her homeward voyage, to the end of the month when she entered the British channel.

Determinations in H.M.S. Rattlesnake in a passage from England to the Cape of Good Hope, in 1847, by Captain OWEN STANLEY, R.N.

The influence of the iron on the Rattlesnake's standard compass was examined at Portsmouth, November 30, 1846, and again at Port Jackson in September 1847, circumstances having prevented a satisfactory repetition of the experiments during a short stay at the Cape of Good Hope.

From the observations at Portsmouth in 1846, as subjoined, we obtain the values of $A = -30'$; $D = +25'$, and $E = +5'$.

TABLE VII.—Disturbance of the Compass in H.M.S. Rattlesnake.

Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.	Ship's head.	Disturbance towards the west.
N.	−0° 50′	W.	+1° 30′	S.	+0° 30′	E.	−3° 20′
N.N.W.	+2 10	W.S.W.	+0 40	S.S.E.	−1 50	E.N.E.	−4 30
N.W.	+3 40	S.W.	+1 50	S.E.	−2 30	N.E.	−3 50
W.N.W.	+2 35*	S.S.W.	+1 10*	E.S.E.	−2 55*	N.N.E.	−2 20

The observations at Portsmouth give $B = +\cdot 0565$ with a dip (approximate) of $+68^{\circ} 40'$: by their repetition at Port Jackson in the September following B was found to have changed to $-\cdot 0305$, with a dip (approximate) of $-62^{\circ} 48'$. The magnetism of the iron in the Rattlesnake was therefore, for the most part at least, of the nature of induced magnetism; but the value of B in this case, as in others where the ship had materially changed her geographical position, was in arrear on her arrival at Port Jackson of the change which had taken place in the terrestrial dip; it corresponded to a dip of $-54^{\circ} 5'$ instead of $-62^{\circ} 48'$. Being only concerned at present with the observations as far as the Cape of Good Hope, I have taken the $\sqrt{B^2 + C^2} = +\cdot 056$ at Portsmouth, which is its value derived from the observations at that port; and having no materials from which the subsequent variation of this term might be more correctly computed, I have assumed it to have varied as the tangent of the dip, which is no doubt approximately true.

The results of the observations which have been thus severally described are contained in the general table No. XII. at the close of this memoir, arranged in zones of latitude, and in the order of their respective longitudes. This table also contains the correction of each result to the mean epoch of January 1840. The original manuscripts of the unpublished portion of the observations from which these results are derived, together with tabular abstracts containing the details of the corrections applied for the ship's iron, will be deposited in the Hydrographic Office.

The subjoined Table, No. VIII., contains the particulars of the groups into which the results have been formed. The mean declinations at the points of intersection, shown in the final column of the table, constitute the elements from which the declination lines in the map are derived; the lines having been drawn in accordance with them, with only such slight deviations as were indispensable to preserve an interconformity between the lines in a few instances where it was obvious that the elements themselves were slightly discordant with each other.

* Interpolated.

TABLE VIII.—Elements of the Declination Lines.

Intersections.		Observations employed		Number of additional observations.	Total number of observations.	Mean declination at the point of intersection.
Lat.	Long.	Between the latitudes of	Between the longitudes of			
62°5	285°0	60°0 and 65°0	280°0 and 290°0	...	7	55° 17'
62°5	290°0	60°0 and 65°0	280°0 and 300°0	...	12	56 48
60°0	290°0	50°0 and 70°0	285°0 and 295°0	...	8	49 07
60°0	295°0	58°5 and 62°5	290°0 and 300°0	...	5	52 20
60°0	355°0	58°0 and 62°0	350°0 and 0°0	...	12	29 01
57°5	310°0	54°0 and 61°0	302°5 and 317°5	...	6	46 52
57°5	315°0	55°0 and 60°0	305°0 and 325°0	...	7	45 22
57°5	320°0	55°0 and 60°0	305°0 and 335°0	...	10	43 38
57°5	325°0	55°0 and 60°0	315°0 and 335°0	1	8	42 05
57°5	330°0	55°0 and 60°0	320°0 and 340°0	...	10	39 55
57°5	335°0	56°0 and 59°0	320°0 and 350°0	...	10	37 29
57°5	340°0	55°0 and 60°0	325°0 and 355°0	1	16	34 59
57°5	345°0	55°0 and 60°0	336°0 and 354°0	...	10	32 35
57°5	350°0	55°0 and 60°0	345°0 and 355°0	...	12	30 20
57°5	355°0	55°0 and 60°0	352°5 and 357°5	...	12	27 56
57°5	357°5	54°0 and 61°0	355°0 and 0°0	...	13	26 58
55°0	300°0	49°0 and 61°0	297°5 and 302°5	4	11	40 48
55°0	305°0	50°0 and 60°0	302°5 and 307°5	2	11	41 37
55°0	310°0	50°0 and 60°0	303°0 and 317°0	1	12	41 42
55°0	315°0	50°0 and 60°0	305°0 and 325°0	2	12	41 54
55°0	320°0	50°0 and 60°0	310°0 and 330°0	...	12	41 14
55°0	325°0	50°0 and 60°0	320°0 and 330°0	...	7	39 50
55°0	330°0	50°0 and 60°0	320°0 and 340°0	...	13	37 56
55°0	335°0	50°0 and 60°0	325°0 and 345°0	2	13	35 42
55°0	340°0	50°0 and 60°0	330°0 and 350°0	1	11	33 51
55°0	345°0	50°0 and 60°0	339°0 and 351°0	1	7	31 45
55°0	350°0	50°0 and 60°0	345°0 and 355°0	1	12	29 33
55°0	355°0	52°5 and 57°5	350°0 and 0°0	4	24	27 17
55°0	0°0	52°5 and 57°5	357°5 and 2°5	3	12	24 54
52°5	350°0	50°0 and 55°0	347°5 and 352°5	...	8	28 41
52°5	355°0	50°0 and 55°0	352°5 and 357°5	1	8	26 15
52°5	0°0	50°0 and 55°0	357°5 and 2°5	...	12	23 50
50°0	280°0	48°0 and 52°0	279°0 and 281°0	...	4	9 01
50°0	295°0	49°0 and 51°0	292°5 and 297°5	2	13	25 09
50°0	300°0	47°5 and 52°5	297°5 and 302°5	...	11	29 49
50°0	305°0	45°0 and 55°0	302°5 and 307°5	1	11	32 45
50°0	325°0	47°0 and 53°0	319°0 and 331°0	1	8	34 32
50°0	330°0	46°0 and 54°0	325°0 and 335°0	1	8	33 53
50°0	335°0	42°5 and 57°5	330°0 and 340°0	2	23	31 52
50°0	340°0	42°5 and 57°5	335°0 and 345°0	2	24	30 21
50°0	345°0	42°5 and 57°5	340°0 and 350°0	2	21	28 52
50°0	350°0	47°5 and 52°5	345°0 and 355°0	2	15	27 14
50°0	355°0	45°0 and 55°0	352°5 and 357°5	...	13	25 22
47°5	290°0	46°5 and 48°5	285°5 and 291°5	1	18	16 10
47°5	295°0	45°0 and 50°0	292°5 and 297°5	...	28	20 50
47°5	300°0	45°0 and 50°0	297°5 and 302°5	...	12	25 09
47°5	305°0	45°0 and 50°0	300°0 and 310°0	1	7	28 24
47°5	325°0	42°5 and 52°5	322°5 and 327°5	...	9	31 41
47°5	330°0	45°0 and 50°0	325°0 and 335°0	2	7	31 02
47°5	335°0	45°0 and 50°0	330°0 and 340°0	...	12	29 44
47°5	340°0	45°0 and 50°0	335°0 and 345°0	2	16	29 14
47°5	345°0	45°0 and 50°0	340°0 and 350°0	1	11	27 50
47°5	350°0	45°0 and 50°0	345°0 and 355°0	1	14	26 11
47°5	355°0	45°0 and 50°0	350°0 and 0°0	2	13	24 34
45°0	285°0	43°5 and 46°5	283°0 and 287°0	2	15	7 54
45°0	290°0	40°0 and 50°0	289°0 and 291°0	2	27	13 08

TABLE VIII. (Continued.)

Intersections.		Observations employed		Number of additional observations.	Total number of observations.	Mean Declination at the point of intersection.
Lat.	Long.	Between the Latitudes of	Between the Longitudes of			
45°0	295°0	42°5 and 47°5	292°5 and 297°5	...	14	17° 34'
45°0	300°0	42°5 and 47°5	297°5 and 302°5	1	7	20 55
45°0	305°0	40°0 and 50°0	300°0 and 310°0	...	9	24 05
45°0	310°0	40°0 and 50°0	305°0 and 315°0	...	8	26 16
45°0	320°0	43°0 and 47°0	315°0 and 325°0	1	10	28 23
45°0	325°0	42°5 and 47°5	320°0 and 330°0	1	10	29 04
45°0	330°0	42°5 and 47°5	325°0 and 335°0	1	10	28 29
45°0	335°0	40°0 and 50°0	330°0 and 340°0	2	21	27 40
45°0	340°0	40°0 and 50°0	335°0 and 345°0	...	20	27 08
45°0	345°0	40°0 and 50°0	342°5 and 347°5	1	11	26 18
42°5	285°0	39°0 and 46°0	284°0 and 286°0	3	18	5 36
42°5	290°0	40°0 and 45°0	288°0 and 292°0	2	18	9 54
42°5	295°0	39°0 and 46°0	290°0 and 300°0	...	15	14 12
42°5	300°0	39°0 and 46°0	290°0 and 310°0	...	20	17 12
42°5	315°0	40°0 and 45°0	310°0 and 320°0	...	10	24 20
42°5	320°0	40°0 and 45°0	315°0 and 325°0	...	14	25 54
42°5	325°0	40°0 and 45°0	320°0 and 330°0	...	14	26 47
42°5	330°0	40°0 and 45°0	325°0 and 335°0	2	11	26 08
42°5	335°0	40°0 and 45°0	330°0 and 340°0	2	9	25 49
40°0	285°0	37°5 and 42°5	282°5 and 287°5	...	15	4 16
40°0	290°0	37°5 and 42°5	287°5 and 292°5	...	11	7 34
40°0	320°0	35°0 and 45°0	315°0 and 325°0	...	22	22 57
40°0	325°0	35°0 and 45°0	322°5 and 327°5	...	19	24 03
40°0	330°0	35°0 and 45°0	325°0 and 335°0	...	26	24 37
40°0	335°0	35°0 and 45°0	330°0 and 340°0	1	20	24 37
40°0	340°0	37°0 and 43°0	335°0 and 345°0	2	8	24 03
40°0	345°0	35°0 and 45°0	340°0 and 350°0	1	11	23 37
40°0	360°0	35°0 and 45°0	355°0 and 5°0	1	18	20 10
37°5	330°0	35°0 and 40°0	325°0 and 335°0	...	18	23 25
37°5	335°0	35°0 and 40°0	330°0 and 340°0	2	14	23 25
35°0	285°0	30°0 and 40°0	280°0 and 290°0	...	15	1 23
35°0	320°0	32°5 and 37°5	317°5 and 322°5	...	10	18 58
35°0	325°0	30°0 and 40°0	322°5 and 327°5	4	22	20 24
35°0	345°0	32°5 and 37°5	340°0 and 350°0	...	5	22 45
35°0	350°0	32°5 and 37°5	347°5 and 352°5	...	7	21 50
35°0	355°0	32°5 and 37°5	350°0 and 360°0	...	12	20 23
30°0	280°0	25°0 and 35°0	277°5 and 282°5	...	5	— 3 58
30°0	320°0	27°5 and 32°5	315°0 and 325°0	...	21	16 01
30°0	325°0	25°0 and 35°0	322°5 and 327°5	1	20	17 54
30°0	345°0	25°0 and 35°0	340°0 and 350°0	...	20	22 00
25°0	285°0	20°0 and 30°0	280°0 and 290°0	...	10	— 2 36
25°0	320°0	20°0 and 30°0	315°0 and 325°0	...	21	12 38
25°0	325°0	20°0 and 30°0	320°0 and 330°0	...	24	14 59
25°0	330°0	22°5 and 27°5	325°0 and 335°0	3	14	16 51
25°0	340°0	22°5 and 27°5	337°5 and 342°5	1	12	20 02
25°0	342°5	20°0 and 30°0	340°0 and 345°0	...	22	20 07
22°5	340°0	20°0 and 25°0	338°5 and 341°5	...	14	19 36
20°0	285°0	15°0 and 25°0	280°0 and 290°0	...	11	— 3 29
20°0	290°0	17°5 and 22°5	280°0 and 300°0	...	13	— 2 08
20°0	320°0	15°0 and 25°0	317°5 and 322°5	...	9	10 27
20°0	325°0	15°0 and 25°0	320°0 and 330°0	...	10	12 48
20°0	330°0	15°0 and 25°0	325°0 and 335°0	...	15	15 04
20°0	335°0	17°5 and 22°5	330°0 and 340°0	...	14	17 27
20°0	340°0	17°0 and 23°0	337°5 and 342°5	...	14	19 15
15°0	300°0	12°5 and 17°5	297°5 and 302°5	...	4	— 0 55
15°0	325°0	10°0 and 20°0	320°0 and 330°0	...	11	11 32

TABLE VIII. (Continued.)

Intersections.		Observations employed		Number of additional observations.	Total number of observations.	Mean Declination at the point of intersection.
Lat.	Long.	Between the Latitudes of	Between the Longitudes of			
15°0	330°0	12°5 and 17°5	325°0 and 335°0	...	15	13 51
15°0	335°0	12°5 and 17°5	330°0 and 340°0	...	23	16 05
15°0	340°0	10°0 and 20°0	337°5 and 342°5	3	14	18 15
10°0	330°0	5°0 and 15°0	326°0 and 334°0	...	15	12 53
10°0	335°0	7°5 and 12°5	332°5 and 337°5	...	15	15 02
10°0	340°0	7°5 and 12°5	337°5 and 342°5	1	9	17 11
10°0	345°0	7°5 and 12°5	342°5 and 347°5	1	10	18 57
5°0	300°0	0°0 and 10°0	296°0 and 304°0	...	10	— 3 56
5°0	330°0	2°5 and 7°5	327°5 and 332°5	1	8	11 57
5°0	335°0	2°5 and 7°5	332°5 and 337°5	...	12	14 20
5°0	340°0	2°5 and 7°5	337°5 and 342°5	3	15	16 21
5°0	345°0	0°0 and 10°0	340°0 and 350°0	...	17	18 21
5°0	350°0	2°5 and 7°5	347°5 and 352°5	...	5	19 34
5°0	355°0	2°5 and 7°5	350°0 and 360°0	2	10	20 06
5°0	0°0	2°5 and 7°5	355°0 and 5°0	1	12	20 11
5°0	5°0	0°0 and 10°0	0°0 and 10°0	...	12	19 58
0°0	330°0	+ 2°5 and — 2°5	327°5 and 332°5	1	16	11 01
0°0	335°0	+ 3°0 and — 3°0	331°0 and 339°0	1	14	14 12
0°0	340°0	+ 3°0 and — 3°0	335°0 and 345°0	1	19	16 24
— 2°5	320°0	0°0 and — 5°0	312°5 and 327°5	...	6	4 58
— 5°0	325°0	0°0 and —10°0	322°0 and 328°0	2	12	7 36
— 5°0	330°0	— 2°5 and — 7°5	327°5 and 332°5	3	19	10 40
— 5°0	335°0	— 1°0 and — 9°0	332°5 and 337°5	...	7	13 58
— 5°0	340°0	— 1°0 and — 9°0	335°0 and 345°0	1	14	16 12
— 5°0	345°0	0°0 and —10°0	342°5 and 347°5	2	15	18 26
—10°0	325°0	— 7°5 and —12°5	322°5 and 327°5	1	9	7 08
—10°0	327°5	— 7°5 and —12°5	325°0 and 330°0	...	14	8 37
—10°0	330°0	— 7°5 and —12°5	327°5 and 332°5	1	17	10 00
—10°0	340°0	— 5°0 and —15°0	335°0 and 345°0	...	10	15 43
—10°0	345°0	— 7°5 and —12°5	342°5 and 347°5	1	10	18 08
—15°0	322°5	—12°0 and —18°0	321°0 and 324°0	3	30	4 23
—15°0	327°5	—12°0 and —18°0	325°0 and 330°0	1	16	7 31
—15°0	330°0	—10°0 and —20°0	328°0 and 332°0	...	14	8 56
—15°0	345°0	—10°0 and —20°0	342°5 and 347°5	1	11	18 10
—15°0	350°0	—14°0 and —16°0	347°5 and 352°5	...	15	20 38
—15°5	352°5	—13°0 and —17°0	350°0 and 355°0	...	17	21 35
—17°5	355°0	—15°0 and —20°0	352°5 and 357°5	2	19	22 40
—20°0	320°0	—17°0 and —23°0	317°5 and 322°5	2	17	1 53
—20°0	325°0	—17°0 and —23°0	324°0 and 326°0	3	12	4 48
—20°0	330°0	—15°0 and —25°0	327°5 and 332°5	...	12	8 02
—20°0	345°0	—15°0 and —25°0	342°5 and 347°5	1	10	17 15
—20°0	350°0	—15°0 and —25°0	347°5 and 352°5	1	14	20 53
—20°0	355°0	—17°0 and —23°0	350°0 and 0°0	2	13	22 50
—22°5	5°0	—18°0 and —27°0	2°0 and 8°0	...	5	25 28
—25°0	315°0	—20°0 and —30°0	313°0 and 317°0	...	16	— 2 22
—25°0	320°0	—22°5 and —27°5	317°5 and 322°5	1	13	0 57
—25°0	325°0	—22°0 and —28°0	322°0 and 328°0	...	7	3 47
—25°0	330°0	—20°0 and —30°0	325°0 and 335°0	...	13	6 51
—25°0	335°0	—23°0 and —27°0	330°0 and 340°0	1	9	9 53
—25°0	340°0	—20°0 and —30°0	335°0 and 345°0	...	14	13 08
—25°0	345°0	—20°0 and —30°0	341°0 and 349°0	...	13	16 43
—25°0	350°0	—20°0 and —30°0	346°0 and 354°0	...	11	20 25
—25°0	7°5	—20°0 and —30°0	360°0 and 0°0	1	9	26 18
—30°0	300°0	—27°0 and —33°0	297°5 and 302°5	...	4	—12 00
—30°0	315°0	—27°5 and —32°5	310°0 and 320°0	...	12	— 3 26
—30°0	320°0	—25°0 and —35°0	316°0 and 324°0	...	15	— 0 26

TABLE VIII. (Continued.)

Intersections.		Observations employed		Number of additional observations.	Total number of observations.	Mean Declination at the point of intersection.
Lat.	Long.	Between the Latitudes of	Between the Longitudes of			
—30°0	335°0	—26°0 and —34°0	330°0 and 340°0	2	10	9 00
—30°0	340°0	—55°0 and —35°0	335°0 and 345°0	...	16	12 13
—30°0	345°0	—25°0 and —35°0	340°0 and 350°0	2	16	15 34
—30°0	350°0	—25°0 and —35°0	345°0 and 355°0	2	12	18 40
—30°0	355°0	—27°5 and —32°5	350°0 and 00°0	2	10	21 34
—30°0	0°0	—28°0 and —32°0	358°0 and 02°0	...	7	23 39
—30°0	10°0	—25°0 and —35°0	5°0 and 15°0	1	18	27 22
—35°0	300°0	—31°0 and —39°0	297°0 and 303°0	...	16	—13 15
—35°0	305°0	—34°0 and —36°0	302°5 and 307°5	1	15	—10 38
—35°0	310°0	—30°0 and —40°0	307°5 and 312°5	...	15	—7 41
—35°0	325°0	—31°0 and —39°0	320°0 and 330°0	...	6	1 39
—35°0	335°0	—30°0 and —40°0	330°0 and 340°0	2	11	7 44
—35°0	340°0	—30°0 and —40°0	336°0 and 344°0	...	11	10 47
—35°0	350°0	—30°0 and —40°0	343°0 and 357°0	2	13	17 03
—35°0	355°0	—30°0 and —40°0	351°0 and 359°0	2	10	19 51
—35°0	0°0	—30°0 and —40°0	355°0 and 05°0	...	18	22 31
—35°0	5°0	—30°0 and —40°0	0°0 and 10°0	1	10	25 10
—35°0	10°0	—32°0 and —38°0	6°0 and 14°0	2	14	26 50
—35°0	15°0	—30°0 and —40°0	13°0 and 17°0	...	22	27 50
—35°0	17°5	—30°0 and —40°0	16°0 and 19°0	...	16	28 51
—40°0	297°5	—38°0 and —42°0	297°0 and 298°0	2	13	—16 02
—40°0	300°0	—37°0 and —43°0	298°0 and 302°0	2	15	—14 30
—40°0	305°0	—37°0 and —43°0	300°0 and 310°0	...	14	—12 13
—42°5	297°5	—41°0 and 44°0	296°0 and 299°0	2	11	—16 42
—42°5	300°0	—40°0 and 45°0	298°5 and 301°0	2	9	—15 17
—45°0	295°0	—42°5 and —47°5	294°0 and 296°5	1	15	—18 34
—47°5	292°5	—45°0 and —50°0	292°0 and 293°0	2	14	—20 00
—47°5	297°5	—45°0 and —50°0	295°0 and 300°0	3	10	—18 19
—50°0	292°5	—47°0 and —53°0	291°5 and 293°0	...	18	—20 49
—50°0	295°0	—47°5 and —52°5	294°0 and 296°5	3	12	—20 15
—50°0	297°5	—47°5 and —52°5	296°0 and 299°5	1	9	—19 15
—50°0	10°0	—47°0 and —53°0	5°0 and 15°0	...	6	—23 35
—52°5	290°0	—50°0 and —55°0	289°5 and 290°0	4	14	—22 48
—52°5	292°5	—50°0 and —55°0	292°0 and 293°0	2	10	—21 50
—52°5	295°0	—50°0 and —55°0	291°0 and 299°0	...	59	—21 04
—52°5	297°5	—50°0 and —55°0	295°0 and 300°0	...	29	—20 15
—52°5	300°0	—51°0 and —54°0	299°0 and 301°0	...	14	—19 39
—52°5	302°5	—50°0 and —55°0	301°0 and 304°0	...	18	—18 33
—55°0	290°0	—54°0 and —56°0	289°0 and 291°0	1	8	—23 41
—55°0	292°5	—54°0 and —56°0	292°0 and 293°0	2	15	—23 16
—55°0	295°0	—54°0 and —56°0	294°0 and 296°0	1	18	—22 31
—55°0	305°0	—53°0 and —57°0	303°0 and 307°0	...	13	—18 17
—57°5	307°5	—55°0 and —60°0	305°0 and 310°0	...	9	—18 25
—57°5	352°5	—56°0 and —59°0	350°0 and 355°0	...	6	—10 58
—60°0	307°5	—56°0 and —64°0	305°0 and 310°0	...	12	—19 31
—62°5	330°0	—62°0 and —63°0	327°0 and 333°0	...	4	—5 50
—62°5	335°0	—60°0 and —65°0	332°0 and 338°0	...	6	—2 32
—62°5	345°0	—60°0 and —65°0	343°0 and 347°0	...	7	4 20
—65°0	392°5	—64°0 and —66°0	301°0 and 304°0	...	18	—23 23
—65°0	305°0	—64°0 and —66°0	304°0 and 306°0	2	16	—21 54
—65°0	317°5	—64°0 and —66°0	316°0 and 319°0	...	6	—14 07
—65°0	350°0	—60°0 and —70°0	348°0 and 352°0	...	8	7 01
—67°5	347°5	—65°0 and —70°0	345°0 and 350°0	...	8	4 17
—70°0	345°0	—69°0 and —71°0	343°0 and 347°0	...	4	2 27

General Table of the Declination in the Atlantic.—It may possibly be found convenient for the purposes of navigation, that the books which contain a compendium of the tables requisite to be used at sea, should include a general table of the magnetic Declination at a certain epoch for a convenient number of geographical positions, with auxiliary tables furnishing the means of readily computing the Declination for intermediate positions, and for other years. The subjoined Tables, Nos. IX. and X., have been formed for the purpose of supplying what has frequently appeared to me a desideratum in this respect. No. IX. is a general table of the Declination in the Atlantic for January 1840, at the intersection of every fifth degree of latitude and longitude between 60° north and 60° south latitude, taken from the maps which accompany this memoir. Should this table be adopted in future editions of any of the very useful compendiums referred to, auxiliary tables may be readily computed and added, containing the factors in longitude and latitude for facilitating the calculation of the Declination corresponding to intermediate geographical positions; whilst by means of Table X. the values of the Declinations in Table IX. may be adapted approximately to any other year for which the Declination may be required. The numbers which it contains are the values of the annual secular change of the Declination, which being multiplied by the interval of years from the date to which the table corresponds (*i. e.* January 1840), observing to prefix the sign + to the interval (in years) if the Declination is required for a subsequent year to 1840, or the sign — if required for an earlier year, will give the correction to be applied for the difference of epoch.

The values of the secular change in Table X. are derived from the comparison of the maps which accompany this memoir with the map of the Declination in 1787, published originally (with the observations on which it was based) in HANSTEEN'S *Magnetismus der Erde*, and republished in this country by myself in the Report of the British Association for the Advancement of Science in 1835. The table consequently represents the average annual secular change which has taken place in the fifty-three years antecedent to 1840. But it will be remembered that the secular change in any particular locality is by no means a constant quantity; and, although over a large proportion of the area of the Atlantic, there is reason to believe that the annual change is still continuing at a rate which does not materially differ from the average of the last fifty years, yet there are parts, (as for example, in the vicinity of the British Islands, and of the Cape of Good Hope,) where the secular change has latterly been obviously undergoing a considerable alteration. Tables formed as these have been, will therefore require to be reformed from time to time; the general table by fresh observations, and the table of secular change by a comparison of the maps founded on those observations with those now given. The time that may be allowed to elapse before the present tables are thus reformed will probably depend less on the interests of navigation and science, than on the degree of attention with which these interests may be regarded by the authorities of the Admiralty in times to come.

But whenever it may be done, it may be expected that the observations of that period will be much more accordant with each other, and with nature, than those which have been at my disposal; in consequence of the general adoption, that we may reasonably anticipate will then have taken place, of the practice of correcting for the deviation in the pointing of the compass occasioned by the ship's iron, and which the increased employment of iron in the equipment of vessels and the magnitude of the errors occasioned thereby, already render in a great number of instances absolutely indispensable. Those who know, as matter of history, the difficulties with which the first introduction of lunar observations and chronometers had to contend, can confidently look forward to a period when the practice of correcting the errors of the compass shall have become general amongst naval officers at least, if not, as may be hoped, amongst merchant seamen also; especially since in the form in which the corrections are now placed, no other preliminary knowledge is required for this purpose than that of the four first rules in arithmetic, with due attention to the signs by which the errors and corrections are characterised.

TABLE IX.—General Table of the Magnetic Declination for January 1840 in the Atlantic Ocean, at the intersection of every 5° of Latitude and Longitude, between 60° North and 60° South Latitude.

Lat.	Longitudes reckoned East from Greenwich.																Lat.
	280°	285°	290°	295°	300°	305°	310°	315°	320°	325°	330°	335°	340°	345°	350°	355°	
60°	35 00†	42 30†	49 10	52 26	52 55	53 05	53 05	53 05	53 05	53 05	53 05	53 05	53 05	53 05	53 05	53 05	60°
55	18 20†	25 00†	31 20†	37 04†	40 45	41 40	41 45	41 50	41 55	42 00	42 05	42 10	42 15	42 20	42 25	42 30	55
50	9 00	15 00	20 05	25 10	29 50	32 45	34 00	34 50	35 40	36 30	37 20	38 10	39 00	39 50	40 40	41 30	50
45	1 40	8 00	13 10	17 30	21 00	24 05	26 15	27 40	28 35	29 05	29 30	29 55	30 20	30 45	31 10	31 35	45
40	0 40	4 10	7 40	11 35	14 30	17 10	19 20	21 10	22 55	24 00	24 30	24 55	25 20	25 45	26 10	26 35	40
35	2 10	1 20	4 30	7 30	10 35	13 00	15 10	17 10	19 00	20 25	21 55	22 35	22 50	23 05	23 20	23 35	35
30	4 00	0 55	2 05	4 50	7 15	9 35	11 50	14 00	16 00	17 40	19 10	20 40	21 40	22 00	22 15	22 30	30
25	.....	2 35	0 30	1 50†	4 25†	6 45†	8 55†	10 50	12 50	15 00	16 50	18 40	20 05	21 00	21 15	21 30	25
20	.....	3 35	2 10	0 35	1 25†	3 55†	6 10†	8 20†	10 35	12 50	15 00	17 25	19 10	20 40	21 10	21 35	20
15	.....	.....	3 30	2 15	0 50	1 15†	3 50†	6 20†	9 00†	11 30	13 50	16 05	18 10	19 50†	20 45	21 30	15
10	.....	.....	.....	3 40	2 25	0 50	1 25†	4 15†	7 25†	10 20	12 50	15 00	17 15	18 55	19 30†	20 05	10
5	.....	.....	.....	.....	3 55	2 05	0 45	2 55	6 00	8 55	11 55	14 20	16 25	18 25	19 35	20 05	5
0	.....	.....	.....	.....	.....	3 15	0 45	1 20	5 00	8 05	11 05	14 00	16 20	18 20	19 40	.....	0
-5	.....	.....	.....	.....	.....	.....	.....	0 30	4 25	7 35	10 40	13 45	16 10	18 25	20 00	21 05†	-5
-10	.....	.....	.....	.....	.....	.....	.....	0 30	3 35	6 55	10 00	12 50	15 45	18 15	20 15	21 45	-10
-15	.....	.....	.....	.....	.....	.....	.....	0 15	2 45	5 55	9 00	12 00	15 00	18 05	20 35	22 25	-15
-20	.....	.....	.....	.....	.....	.....	.....	1 10	1 55	4 50	7 55	11 10	14 10	17 25	20 50	22 40	-20
-25	.....	.....	.....	.....	.....	.....	.....	2 15	0 50	3 50	6 50	10 00	13 15	16 40	20 15	22 30	-25
-30	.....	.....	.....	.....	.....	.....	.....	3 25	0 25	2 45	5 45	9 00	12 00	15 25	18 45	21 30	-30
-35	.....	.....	.....	.....	.....	.....	.....	4 40	1 45	1 30	4 35	7 50	10 45	13 45	17 00	20 00	-35
-40	.....	.....	.....	.....	.....	.....	.....	6 15	3 05	0 00	3 10	6 25	9 35	12 30	15 30	18 25	-40
-45	.....	.....	.....	.....	.....	.....	.....	8 00†	5 00†	1 45†	1 25†	4 45†	7 55†	11 00†	14 30†	16 55†	-45
-50	.....	.....	.....	.....	.....	.....	.....	10 05†	6 50†	3 40†	0 25†	2 45†	6 00†	9 10†	12 15†	15 10	-50
-55	.....	.....	.....	.....	.....	.....	.....	12 15†	9 00†	5 40†	2 25†	0 45†	4 00†	7 10†	10 20	13 10	-55
-60	.....	.....	.....	.....	.....	.....	.....	14 20	11 10	8 00	4 50	1 25	1 55	5 00	8 15	11 20	-60
-65	.....	.....	.....	.....	.....	.....	.....	15 40	12 35	9 25	6 15	3 00	0 20	3 40	6 50	9 40	-65
-70	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	-70

The Declinations marked thus † are interpolated in the absence of observations. East Declination is characterised by the sign —. Where no sign is prefixed the Declination is West.

TABLE X.—Annual Secular Change in the Magnetic Declination, on the average of fifty-three years antecedent to January 1840, taken to the nearest half-minute. The sign + in this table implies that the secular change in the period referred to was increasing westerly, or decreasing easterly Declination; and the sign — implies the change to have been decreasing westerly, or increasing easterly Declination.

Lat.	Longitudes reckoned East from Greenwich.																Lat.
	280°	285°	290°	295°	300°	305°	310°	315°	320°	325°	330°	335°	340°	345°	350°	355°	
60	+2.0	+6.6	+12.3	+14.0	+14.0	+13.3	+12.5	.....	.....	.....	.....	+4.0	+2.6	+1.6	+0.5	+0.4	60
55	-5.7	-2.3	+2.6	+5.7	+9.3	+10.0	+9.3	+9.4	+9.3	+8.2	+6.5	+4.0	+3.7	+2.3	+0.5	0.0	55
50	-4.5	-0.6	+1.2	+5.4	+9.2	+11.0	+10.5	+11.0	+11.0	+9.5	+8.0	+6.0	+4.0	+2.5	+2.0	0.0	50
45	-4.5	-1.0	+3.2	+5.0	+7.2	+9.0	+10.0	+10.2	+9.7	+8.5	+7.0	+5.5	+4.1	+2.7	+1.0	0.0	45
40	-2.0	0.0	+2.2	+4.5	+6.2	+7.0	+7.8	+8.2	+9.0	+8.0	+6.5	+5.0	+4.0	+3.0	+1.5	0.0	40
35	0.0	+1.5	+2.3	+3.2	+4.5	+5.7	+6.2	+7.0	+7.2	+7.0	+7.5	+5.7	+5.0	+4.0	+2.2	+0.5	35
30	+0.5	+1.5	+2.5	+3.6	+4.0	+5.0	+5.5	+6.0	+6.9	+6.4	+6.6	+6.4	+5.3	+5.0	+3.3	+2.0	30
25	.....	+2.0	+2.2	+2.7	+4.0	+4.8	+5.0	+5.0	+5.5	+6.0	+6.0	+6.0	+6.0	+5.3	+3.6	+2.0	25
20	.....	+1.8	+2.2	+2.2	+2.2	+3.9	+4.1	+4.1	+4.6	+5.5	+5.7	+6.0	+6.0	+5.0	+4.0	+2.0	20
15	.....	.....	+2.0	+2.0	+2.0	+2.3	+4.0	+4.3	+5.7	+6.0	+6.2	+6.1	+6.2	+5.0	+4.0	+2.8	15
10	.....	.....	.....	+2.0	+2.0	+2.0	+3.7	+4.2	+5.6	+6.5	+6.5	+6.5	+6.5	+6.0	+4.7	+4.0	10
5	.....	.....	.....	.....	+1.5	+2.3	+2.7	+4.8	+6.0	+7.0	+8.0	+8.0	+7.3	+6.7	+5.2	+4.5	5
0	.....	.....	.....	.....	.....	+2.5	+4.4	+5.0	+6.5	+8.0	+8.3	+9.0	+8.3	+7.9	+5.7	.....	0
-5	.....	.....	.....	.....	.....	.....	.....	+6.6	+7.6	+9.0	+9.2	+10.0	+9.5	+9.5	+7.0	+6.0	5
-10	.....	.....	.....	.....	.....	.....	.....	+7.0	+8.0	+9.8	+10.8	+10.2	+10.2	+9.5	+8.0	+7.0	-10
-15	.....	.....	.....	.....	.....	.....	.....	+8.0	+9.0	+9.5	+10.2	+10.8	+11.0	+10.3	+9.3	+8.5	-15
-20	.....	.....	.....	.....	.....	.....	.....	+8.0	+9.2	+9.8	+10.5	+11.3	+10.8	+11.0	+11.0	+10.0	-20
-25	.....	.....	.....	.....	.....	.....	+7.0	+9.0	+9.5	+10.5	+10.5	+11.3	+11.3	+11.3	+11.5	+10.8	-25
-30	.....	.....	.....	.....	+3.0	+5.0	+7.0	+8.5	+10.0	+11.0	+10.7	+10.7	+10.7	+11.3	+11.4	+10.7	-30
-35	.....	.....	.....	.....	+3.4	+5.5	+7.0	+8.8	+9.3	+10.2	+11.4	+11.5	+11.4	+10.5	+10.4	+11.0	-35
-40	.....	.....	.....	+1.5	+4.0	+5.5	+6.7	+8.0	+9.3	+10.2	+11.0	+11.0	+11.0	+10.5	+10.0	+10.0	-40
-45	.....	.....	.....	+2.3	+4.0	+5.5	+6.4	+7.5	+8.5	+9.5	+9.5	+10.8	+10.0	+9.7	+9.8	+9.5	-45
-50	.....	.....	+1.0	+2.5	+4.0	+4.8	+5.7	+6.0	+7.3	+8.3	+9.0	+9.5	+9.5	+9.0	+9.6	+9.0	-50
-55	.....	.....	+1.5	+3.0	+3.0	+3.4	+4.0	+4.5	+5.5	+7.0	+8.0	+9.0	+9.0	+9.0	+9.2	+9.2	-55
-60	.....	.....	.....	.....	+1.5	+1.1	+1.1	+2.4	+3.2	+4.5	+5.5	+6.5	+7.3	+8.7	+9.0	+9.0	-60

Comparison with M. Gauss's Theory.—As many persons may be desirous of seeing the result of a comparison of the Declinations computed by M. GAUSS's general theory, with those derived from observation over a field of considerable extent, I have subjoined in Table XI. in degrees and decimals of a degree, the differences of Declination at the intersections of every five degrees of latitude and longitude. The sign — signifies that the theoretical Declinations are more easterly (i. e. greater east or less west Declination) than the observed; and the sign + that the theoretical are more westerly (i. e. greater west or less east Declination) than the observed.

It must be remembered that the coefficients of M. GAUSS's theory in their present numerical values do not profess to be more than a first approximation; that they rest on maps of the phenomena drawn indeed from observation, but in which care was not always taken to use only observations of a definite epoch; that the points of the globe in which the elements of the theory rest upon the observed phenomena are only eighty-four points on the whole surface of the globe, viz. twelve points on seven parallels; no point being taken in a more southern parallel than 20° south latitude; and lastly, that the coefficients are limited to terms of the fourth order.

On the other hand, it will be remembered that the Declination is the easiest, and has been by far the most frequently observed, of the three magnetic elements; that from a very early period maps of the Declination, particularly in the Atlantic, and professing to be adapted to definite epochs, have been in much request on account of their use in navigation; and that consequently it might naturally be expected that the differences between the theory and observation should be *less* in the comparison here instituted, than might be the case in parts of the globe where the elements of the theory have had a less direct, or a less satisfactory derivation.

The differences of greatest amount which appear in this comparison are those over the north-west portion of the Atlantic, amounting to from five to nearly eight degrees generally between the meridian of Newfoundland and the United States, (meridians of 287° to 307° , or 53° to 73° west longitude), in the well-traversed parallels from 45° to 50° N.; and increasing to 18° and upwards in the latitude of 60° in the vicinity of Hudson's Strait, where the correct value of the declination has been well known for several years by the observations of the different British expeditions of discovery. In the southern Atlantic, where, as already remarked, the data of observation on which the theoretical coefficients are based have not been taken from a higher latitude than 20° S., there appears a tendency to systematic differences; in excess (or too small easterly declinations) on the west side of the Atlantic, and in defect (or too small westerly declinations) on the east side of the Atlantic.

A discrepancy deserving of notice in the theoretical lines (i. e. in the lines of magnetic Declination as they may be drawn from calculation with the present numerical elements of M. GAUSS's theory), is in the value of the remarkable isogonic line, the

TABLE XI.—Comparison with M. GAUSS'S Theory.

The sign — signifies that the theoretical Declinations are more easterly (or less westerly) than the observed ; and the sign + that they are more westerly (or less easterly) than the observed Declinations.

Lat.	Longitudes reckoned East from Greenwich.																	Lat.			
	280°	285°	290°	295°	300°	305°	310°	315°	320°	325°	330°	335°	340°	345°	350°	355°	0°		5°	10°	15°
60	188	183	169	160	120	105	85	58	49	34	22	07	02	00	07	03	02	02	01	00	60
55	107	108	105	114	103	85	58	49	49	34	22	07	02	00	13	10	10	07	00	00	55
50	62	73	69	76	77	74	54	45	27	18	05	08	17	18	20	20	21	19	00	00	50
45	18	40	56	57	52	50	39	31	17	10	07	16	23	25	30	30	32	27	00	00	45
40	14	30	33	39	35	30	21	14	06	01	11	18	29	30	35	37	42	39	00	00	40
35	12	21	27	28	31	26	19	13	05	01	04	09	17	21	22	39	47	00	00	00	35
30	03	13	21	24	24	21	17	12	07	03	03	03	08	11	28	38	00	00	00	00	30
25	00	09	10	12	16	15	13	07	02	01	03	02	05	06	24	35	00	00	00	00	25
20	00	06	05	01	02	05	05	02	01	00	01	03	02	05	18	31	00	00	00	00	20
15	00	00	01	04	07	07	03	01	02	04	04	05	05	02	11	25	00	00	00	00	15
10	00	00	00	08	12	16	14	06	01	07	07	07	07	07	05	16	00	00	00	00	10
5	00	00	00	00	16	18	17	10	02	04	10	11	09	10	02	05	17	22	00	00	5
0	00	00	00	00	00	19	13	08	00	06	12	17	16	14	08	00	00	00	00	00	0
-5	00	00	00	00	00	00	00	04	04	11	17	23	22	22	16	10	01	09	20	00	-5
-10	00	00	00	00	00	00	00	03	06	14	19	22	25	26	22	18	08	00	13	00	-10
-15	00	00	00	00	00	00	00	00	07	13	18	22	25	31	30	27	17	10	05	00	-15
-20	00	00	00	00	00	00	00	01	09	12	17	22	25	31	38	36	24	18	05	00	-20
-25	00	00	00	00	00	00	00	02	09	14	18	22	23	29	40	37	29	24	14	04	-25
-30	00	00	00	00	00	00	00	03	09	15	20	23	23	29	48	35	30	28	22	19	-30
-35	00	00	00	00	00	00	00	02	09	15	20	23	23	29	48	30	29	30	25	22	-35
-40	00	00	00	00	00	00	00	01	09	13	18	21	24	24	45	27	27	28	25	23	-40
-45	00	00	00	00	00	00	00	03	03	09	13	18	21	24	45	24	25	27	27	27	-45
-50	00	00	00	00	00	00	00	11	03	02	08	11	15	17	19	18	19	23	23	26	-50
-55	00	00	00	00	00	00	00	20	03	06	01	02	06	08	11	11	17	14	17	20	-55
-60	00	00	00	00	00	00	00	29	03	19	15	10	06	04	01	01	02	04	05	07	-60

branches of which form the limits of the four great systems of isogonic lines, viz. of the four great systems which prevail respectively in the N.W., N.E., S.W. and S.E. directions, and have one isogonic line common to them all, the branches of which meet at a common point of junction or intersection near the west coast of Africa, and not far from the terrestrial equator. The theoretical value of this line is $22^{\circ} 13' W.$; whereas its true value is certainly not more than between 19° and 20° , and it appears to have been in the year 1840 nearly midway between those values. Had the theoretical value been in defect instead of in excess, the difference might have been ascribed to an effect of secular change; in which case M. GAUSS's map might be supposed to represent an earlier state of the phenomena than that of the year 1840. But the fact is otherwise; the theoretical value of the line in question is in excess, although its actual value has been progressively increasing since the earliest record of the phenomena, and was greater in 1848 than in any antecedent year since the phenomena have been observed. The theoretical error is the more remarkable because Mr. BARLOW's map for 1833, which was the one employed by M. GAUSS for the declination, gives the value of that element correctly at 20° or thereabouts, at the spot where M. GAUSS's theoretical line of $22^{\circ} 13'$ cuts the coast of Africa.

The *form* of the lines in Mr. BARLOW's map in that quarter of the globe is indeed not correct, since on no part of the surface of the earth do the magnetic lines *fork* in the manner there represented, and which is very different from the *intersection* of lines of equal value forming four branches of one and the same isogonic line, which is the character of the remarkable line now referred to; but the *value* of the declination on that part of the African coast is more correct in Mr. BARLOW's map than in M. GAUSS's theory, which is partly based upon it. The geographical *position* of the intersection is also given by M. GAUSS's theory about 10° of longitude too much to the east. The secular movement of the intersection is to the west, and may be estimated, very roughly, at about 10° in the last half-century.

It is obvious from this comparison that the General Theory will require to have its numerical coefficients reconstructed before it can become available for practical purposes; and that those who desire to take a correct view of the magnetic phenomena, must for the present at least, have recourse to the maps constructed directly from the observations themselves.

TABLE XII.—Declinations employed in the Map, corrected to the epoch of January 1840.

† in the column of remarks signifies that the Declination has been corrected for the effect of the ship's iron.

Lat.	Long.	Date.	Observer.	Observed Declination.	Correc- tion for Epoch.	Corrected Declina- tion.	Remarks.
Between the latitudes of 65° and 60°.							
63° 18'	280° 41'	1846.	Moore.	58° 21'	-1° 24'	56° 57'	At sea†.
63° 13'	282° 55'	1846.	Moore.	55° 28'	-1° 24'	54° 31'	At sea†.
63° 15'	284° 41'	1846.	Moore.	58° 54'	-1° 24'	57° 30'	At sea†.
63° 19'	285° 40'	1846.	Moore.	60° 13'	-1° 24'	58° 49'	At sea†.
62° 57'	287° 13'	1846.	Moore.	58° 56'	-1° 24'	57° 32'	At sea†.
62° 47'	288° 27'	1846.	Moore.	58° 20'	-1° 24'	56° 56'	At sea†.
61° 54'	289° 40'	1846.	Moore.	54° 49'	-1° 24'	53° 25'	At sea†.
62° 13'	290° 47'	1846.	Moore.	59° 20'	-1° 24'	57° 56'	At sea†.
61° 00'	294° 48'	1846.	Moore.	55° 56'	-1° 24'	54° 32'	At sea†.
61° 34'	295° 46'	1846.	Moore.	58° 33'	-1° 24'	57° 09'	At sea†.
60° 49'	296° 00'	1846.	Moore.	56° 22'	-1° 24'	54° 58'	At sea†.
60° 58'	299° 00'	1846.	Moore.	55° 49'	-1° 24'	54° 25'	At sea†.
64° 08'	338° 05'	1836.	Lottin.	43° 14'	+0° 22'	43° 36'	Reikiavik.
62° 00'	354° 02'	1831.	Vidal.	30° 50'	+0° 17'	31° 07'	Thorshavn.
60° 09'	358° 53'	1838.	Ross.	27° 09'	+0° 03'	27° 12'	Lerwick.
60° 45'	359° 14'	1831.	Vidal.	28° 38*	+0° 17'	28° 55'	Balta Island.
Between the latitudes of 60° and 50°.							
51° 15'	279° 04'	1846.	Moore.	12° 40'	+0° 18'	12° 58'	Moose Factory.
51° 18'	279° 16'	1846.	Moore.	10° 55'	+0° 18'	11° 13'	{ On shore, entrance of Moose Harbour.
51° 28'	279° 26'	1846.	Moore.	10° 41'	+0° 18'	10° 59'	At sea†.
51° 49'	279° 28'	1846.	Moore.	10° 05'	+0° 18'	10° 23'	At sea†.
50° 13'	293° 35'	1831.	Bayfield.	23° 34'	+0° 36'	24° 10'	Bay of Seven Islands.
50° 11'	293° 55'	1831.	Bayfield.	24° 08'	+0° 36'	24° 44'	Moisic River.
50° 17'	295° 58'	1831.	Bayfield.	25° 30'	+0° 51'	26° 21'	Mingan Harbour.
50° 03'	296° 07'	1842.	Lefroy.	26° 26'	-0° 15'	26° 05'	At sea†.
50° 14'	296° 49'	1832.	Bayfield.	27° 31'	+0° 50'	28° 21'	Betchewun Harbour.
50° 14'	297° 48'	1832.	Bayfield.	28° 08'	+0° 52'	29° 00'	Nabosippe River.
50° 11'	298° 44'	1832.	Bayfield.	28° 47'	+1° 00'	29° 47'	Kegashka Bay.
50° 11'	299° 52'	1832.	Bayfield.	29° 22'	+1° 00'	30° 22'	Cape Whittle.
50° 33'	300° 43'	1833.	Bayfield.	29° 33'	+0° 55'	30° 28'	Little Mecattina.
50° 44'	300° 59'	1833.	Bayfield.	30° 00'	+0° 58'	31° 00'	Grand Mecattina.
51° 16'	301° 47'	1834.	Bayfield.	31° 15'	+0° 55'	32° 10'	Mistanoque Harbour.
51° 27'	302° 33'	1834.	Bayfield.	32° 00'	+0° 56'	32° 56'	Belles Amours Harbour.
51° 28'	302° 45'	1834.	Bayfield.	32° 30'	+0° 59'	33° 29'	Bradore Harbour.
51° 28'	303° 03'	1833.	Bayfield.	32° 26'	+1° 05'	33° 41'	Fortew Bay.
59° 55'	303° 20'	1846.	Moore.	52° 29'	-1° 24'	51° 05'	At sea†.
51° 24'	303° 26'	1833.	Bayfield.	33° 30'	+1° 05'	34° 35'	Green Island in Straits of Bellisle.
51° 44'	303° 34'	1835.	Bayfield.	34° 30'	+0° 47'	35° 17'	Red Bay.
52° 00'	304° 09'	1835.	Bayfield.	35° 30'	+0° 48'	36° 18'	Chateau Bay.
52° 21'	304° 21'	1835.	Bayfield.	37° 30'	+0° 50'	38° 20'	Cape St. Lewis.
58° 46'	307° 00'	1846.	Moore.	50° 05'	-1° 21'	48° 44'	At sea†.
56° 49'	310° 26'	1846.	Moore.	45° 45'	-1° 15'	44° 30'	At sea†.
57° 54'	310° 34'	1846.	Moore.	48° 45'	-1° 15'	47° 30'	At sea†.
57° 42'	315° 57'	1846.	Moore.	47° 44'	-1° 15'	46° 29'	At sea†.
54° 00'	316° 24'	Sept. 1846.	Moore.	44° 00'	-1° 16'	42° 44'	At sea†.
57° 30'	319° 20'	1846.	Moore.	45° 28'	-1° 11'	44° 17'	At sea†.
57° 21'	321° 05'	1846.	Moore.	44° 33'	-1° 11'	43° 22'	At sea†.
52° 17'	321° 45'	Sept. 1846.	Moore.	39° 18'	-1° 14'	38° 04'	At sea†.

* A mean of 4 stations.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correc- tion for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of 60° and 50° (continued).							
57° 05'	324° 10'	1846.	Moore.	43° 16'	-1° 03'	42° 11'	At sea†.
51 47	325 00	Sept. 1846.	Moore.	37 40	-1 08	36 32	At sea†.
51 10	327 09	Sept. 1846.	Moore.	37 43	-1 00	36 43	At sea†.
56 25	327 15	1846.	Moore.	40 19	-0 45	39 34	At sea†.
56 15	329 18	1846.	Moore.	40 14	-0 45	39 29	At sea†.
50 14	330 46	Sept. 1846.	Moore.	35 55	-0 53	35 02	At sea†.
56 16	333 02	1846.	Moore.	38 18	-0 26	37 52	At sea†.
56 00	335 06	1846.	Moore.	36 52	-0 26	36 26	At sea†.
55 41	336 55	1846.	Moore.	36 26	-0 26	36 00	At sea†.
55 53	337 05	1846.	Moore.	35 32	-0 26	35 06	At sea†.
56 09	338 25	1846.	Moore.	36 20	-0 26	35 54	At sea†.
56 19	341 08	1846.	Moore.	34 19	-0 22	33 57	At sea†.
57 43	345 08	1846.	Moore.	32 14	-0 16	31 58	At sea†.
58 40	349 09	1846.	Moore.	31 35	-0 13	31 22	At sea†.
51 56	349 43	Oct. 1838.	Ross.	28 42	-0 06	28 36	Valencia Island.
52 02	350 30	Oct. 1838.	Ross.	28 11	-0 06	28 05	Killarney.
53 48	350 31	Nov. 1838.	Ross.	29 09	-0 06	29 03	Westport.
52 40	351 24	Oct. 1838.	Ross.	28 03	-0 06	27 57	Limerick.
57 49	351 28	Oct. 1831.	Vidal.	30 30	-0 34	29 56	St. Kilda.
51 54	351 32	Oct. 1838.	Ross.	27 44	-0 06	27 38	Cork.
54 14	351 32	Nov. 1838.	Ross.	29 15	-0 06	29 09	Markree.
53 14	352 07	Oct. 1838.	Ross.	28 03	-0 06	27 57	Shannon Harbour.
53 42	352 27	Nov. 1838.	Ross.	28 08	-0 06	28 02	Edgeworthstown.
55 08	352 35	1831.	Vidal.	28 28	-0 06	28 22	Buncrana.
54 59	352 41	Nov. 1838.	Ross.	28 47	-0 06	28 41	Londonderry.
52 15	352 52	Oct. 1838.	Ross.	26 44	-0 06	26 38	Waterford.
54 21	353 21	Nov. 1838.	Ross.	28 08	-0 06	28 02	Armagh.
58 15	353 36	1846.	Otter.	27 40	-0 06	27 34	Stornaway.
53 21	353 45	Oct. 1838.	Ross.	27 35	-0 06	27 29	Dublin.
53 21	353 45	Jan. 1840.	Lloyd.	27 30	0 00	27 30	Dublin Observatory.
59 05	353 53	1831.	Vidal.	29 41	-0 34	29 07	Sulisker.
59 07	354 13	1831.	Vidal.	29 34	-0 34	29 00	Rona.
58 09	354 46	1848.	Otter.	27 59	+0 42	28 41	Loch Inver.
58 23	354 56	1846.	Otter.	27 34	+0 42	28 16	Luxford.
58 15	354 57	1846.	Otter.	27 58	+0 42	28 40	Gowan.
50 09	355 09	1831.	Austin.	25 25	-0 42	24 43	Pendennis Castle.
57 28	355 49	Aug. 1838.	Ross.	27 59	-0 06	27 53	Inverness.
57 58	356 03	Aug. 1838.	Ross.	27 55	-0 06	27 49	Golspie.
58 24	356 55	Aug. 1838.	Ross.	27 41	-0 06	27 35	Wick.
59 00	357 02	Aug. 1838.	Ross.	27 47	-0 06	27 41	Kirkwall.
54 55	357 16	Sept. 1838.	Ross.	26 15	-0 06	26 09	Carlisle.
55 35	357 29	Jan. 1842.	Brisbane.	25 27	+0 10	25 37	Makerstoun Observatory.
58 16	357 49	1846.	Moore.	26 43	+0 42	27 25	At sea†.
57 09	357 55	July 1838.	Ross.	26 41	-0 06	26 35	Aberdeen.
54 58	358 24	Aug. 1838.	Ross.	25 20	-0 06	25 14	Newcastle.
52 57	358 52	May 1838.	Ross.	24 53	-0 06	24 47	Nottingham.
53 57	358 54	April 1838.	Ross.	25 09	-0 06	25 03	York.
54 18	359 34	May 1838.	Ross.	24 32	-0 06	24 26	Scarborough.
54 08	359 46	May 1838.	Ross.	24 39	-0 06	24 33	Bridlington.
51 31	359 38	April 1838.	Ross.	23 59	-0 06	23 53	Bushey.
53 19	0 00	May 1838.	Ross.	24 26	-0 06	24 20	Louth.
51 28	0 00	1841.	Airy.	23 16	+0 07	23 23	Greenwich Observatory.
51 56	1 13	May 1838.	Ross.	23 08	-0 06	23 12	Harwich.
52 56	1 19	May 1838.	Ross.	23 21	-0 06	23 15	Cromer.
51 23	1 23	April 1838.	Ross.	22 54	-0 06	22 48	Margate.
52 28	1 50	May 1838.	Ross.	23 00	-0 06	22 54	Lowestoffe.
50 51	4 22	Jan. 1844.	Quetelet.	21 16	+0 32	21 48	Brussels.
59 54	10 44	Jan. 1840.	Hansteen.	19 50	0 0	19 50	Christiania.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correction for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of 50° and 40°.							
43° 40'	280° 38'	Jan. 1840.	Riddell.	1° 27'	0° 00'	1° 27'	Magnetic Observatory, Toronto.
45° 36'	283° 07'	May 1843.	Lefroy.	5° 11'	+0° 05'	5° 16'	Fort Portage.
45° 29'	284° 12'	May 1843.	Lefroy.	6° 58'	+0° 05'	7° 03'	6 miles below Bytown.
40° 08'	284° 17'	May 1846.	U.S. Coast Survey.	4° 22'	-0° 04'	4° 18'	Whitehill.
40° 05'	284° 26'	June 1846.	U.S. Coast Survey.	3° 13'	-0° 04'	3° 09'	Fort Delaware.
45° 37'	284° 48'	May 1843.	Lefroy.	6° 58'	+0° 05'	7° 03'	Alfred Township.
45° 37'	285° 05'	May 1843.	Lefroy.	7° 28'	+0° 05'	7° 33'	Point aux Chènes.
45° 36'	285° 28'	May 1843.	Lefroy.	8° 41'	+0° 05'	8° 46'	Carillon.
45° 36'	285° 38'	May 1843.	Lefroy.	8° 26'	+0° 05'	8° 31'	On the Ottawa.
40° 43'	285° 59'	1844.	Renwick.	6° 13'	-0° 02'	6° 11'	Columbia College.
40° 28'	286° 00'	Jan. 1844.	U.S. Coast Survey.	5° 51'	-0° 02'	5° 49'	Sandy Harbour.
45° 30'	286° 25'	1842.	Lefroy.	8° 58'	0° 00'	8° 58'	Montreal.
45° 32'	286° 26'	1834.	Bayfield.	8° 00'	0° 00'	8° 00'	Montreal.
40° 53'	286° 29'	1844.	Renwick.	6° 54'	-0° 02'	6° 52'	Oyster Bay.
45° 00'	286° 39'	Oct. 1845.	Boundary Survey.	11° 28'	0° 00'	11° 28'	Rouse's Point.
45° 19'	286° 42'	1842.	Lefroy.	11° 22'	0° 00'	11° 22'	St. John's.
46° 06'	286° 59'	1830.	Bayfield.	10° 30'	0° 00'	10° 30'	Stone Island.
46° 03'	287° 00'	1830.	Bayfield.	11° 00'	0° 00'	11° 00'	Sorel.
46° 03'	287° 00'	1842.	Lefroy.	11° 23'	0° 00'	11° 23'	Sorel.
41° 15'	287° 05'	Sept. 1845.	U.S. Coast Survey.	6° 17'	-0° 06'	6° 11'	Newhaven.
46° 14'	287° 16'	1828.	Bayfield.	11° 15'	+0° 06'	11° 21'	Lake St. Peter.
46° 17'	287° 18'	1835.	Bayfield.	10° 53'	+0° 02'	10° 55'	Point du Lac.
44° 16'	287° 23'	1829-1830.	Graham.	12° 26'	+0° 10'	12° 36'	Montpelier.
46° 19'	287° 24'	1842.	Lefroy.	11° 58'	-0° 10'	11° 57'	Three Rivers.
45° 53'	287° 26'	1842.	Lefroy.	12° 28'	-0° 01'	12° 27'	Drummondville.
46° 25'	287° 36'	1835.	Bayfield.	12° 52'	+0° 02'	12° 54'	Isle Bigôt.
41° 06'	287° 38'	1845.	Renwick.	7° 14'	-0° 06'	7° 08'	Sandy Point.
45° 00'	287° 47'	Nov. 1845.	Boundary Survey.	11° 33'	0° 00'	11° 33'	Stanstead.
44° 02'	287° 55'	Sept. 1830.	Graham.	7° 32'	+0° 10'	7° 42'	Haverhill.
43° 56'	288° 05'	Sept. 1830.	Graham.	9° 08'	+0° 10'	9° 18'	Warren.
41° 20'	288° 05'	1842.	U.S. Coast Survey.	7° 38'	-0° 06'	7° 32'	Stonington.
46° 40'	288° 06'	Aug. 1845.	Bayfield.	12° 52'	+0° 02'	12° 54'	Platon Point.
43° 49'	288° 07'	Sept. 1830.	Graham.	9° 38'	+0° 10'	9° 48'	West Rumney.
43° 45'	288° 18'	Sept. 1830.	Graham.	8° 32'	+0° 10'	8° 42'	Plymouth.
45° 01'	288° 30'	Dec. 1845.	Graham.	12° 22'	0° 00'	12° 22'	Canaan Corner.
44° 43'	288° 31'	Sept. 1830.	Graham.	7° 53'	+0° 10'	8° 03'	Lake Winnississiogee.
46° 49'	288° 44'	1842.	Lefroy.	14° 12'	-0° 02'	14° 10'	Quebec, Artillery Barracks.
45° 15'	288° 46'	May 1845.	Boundary Survey.	12° 17'	-0° 17'	12° 00'	Prospect Hill.
46° 49'	288° 47'	1831-1836.	Bayfield.	14° 14'	+0° 06'	14° 20'	Quebec, Wolfe's Monument.
45° 15'	288° 47'	Oct. 1845.	Boundary Survey.	12° 00'	-0° 18'	11° 42'	Observatory, Connecticut River.
42° 23'	288° 52'	1840.	Lowering and Bond.	9° 18'	0° 00'	9° 18'	Observatory, Cambridge, U.S.
45° 18'	288° 55'	June 1845.	Boundary Survey.	13° 20'	-0° 17'	13° 03'	Near the Highland Boundary Line.
41° 19'	288° 59'	1844.	Renwick.	7° 29'	-0° 05'	7° 24'	Croton Point.
45° 20'	289° 05'	June 1845.	Boundary Survey.	13° 30'	-0° 17'	13° 13'	Arnold's River.
41° 38'	289° 05'	Aug. 1845.	U.S. Coast Survey.	8° 57'	-0° 08'	8° 49'	Fort Point.
45° 26'	289° 12'	July 1845.	Boundary Survey.	13° 10'	-0° 17'	12° 53'	Dead River.
41° 28'	289° 14'	Aug. 1846.	U.S. Coast Survey.	9° 10'	-0° 10'	9° 00'	Tarpaulin Town.
43° 05'	289° 15'	July 1844.	Boundary Survey.	9° 47'	-0° 14'	9° 33'	Boiling Rock.
45° 30'	289° 16'	Oct. 1844.	Boundary Survey.	13° 20'	-0° 17'	13° 03'	Near the Highland Boundary.
45° 32'	289° 18'	Sept. 1844.	Boundary Survey.	13° 30'	-0° 16'	13° 14'	Near the Highland Boundary.
45° 37'	289° 23'	Sept. 1844.	Boundary Survey.	13° 37'	-0° 16'	13° 21'	Near the Highland Boundary.
41° 29'	289° 24'	Aug. 1846.	U.S. Coast Survey.	8° 50'	-0° 10'	8° 40'	Indian Hill.
47° 08'	289° 28'	1842.	Lefroy.	14° 00'	-0° 04'	13° 56'	At sea†.
47° 04'	289° 28'	1831.	Bayfield.	14° 28'	+0° 19'	14° 47'	Crane Island.
45° 42'	289° 32'	Sept. 1844.	Boundary Survey.	13° 50'	-0° 16'	13° 34'	On the Highland Boundary.
47° 25'	289° 34'	1831.	Bayfield.	15° 17'	+0° 19'	15° 36'	Isle aux Condres.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correc- tion for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of 50° and 40° (continued).							
45° 39'	289° 36'	Aug. 1844.	Boundary Survey.	14° 07'	-0° 16'	13° 51'	Taschereau's.
47 12	289 38	1831.	Bayfield.	14 49	+0 19	15 08	Stone Pillar.
47 20	289 42	1842.	Lefroy.	14 16	-0 06	14 10	At sea†.
42 03	289 48	Sept. 1835.	Graham.	9 20	+0 11	9 31	Provincetown.
46 25	289 57	Nov. 1844.	Boundary Survey.	15 02	-0 17	14 45	Astron. Station, S.W. branch of the St. John's River.
48 09	290 16	1829.	Bayfield.	17 35	+0 24	17 59	Tadousac.
47 53	290 18	1833.	Bayfield.	17 20	+0 16	17 36	Brandy Pots.
47 51	290 26	1831.	Bayfield.	17 36	+0 19	17 55	River du Loup.
46 57	290 33	Sept. 1844.	Boundary Survey.	16 29	-0 16	16 13	Astron. Station, Big Black River.
48 12	290 51	1829.	U. S. Coast Survey.	17 34	+0 24	17 58	Razade Islands.
48 37	290 53	1831.	Bayfield.	17 36	+0 19	17 55	Port Neuf.
47 14	290 59	{ Sept. & Oct. 1843. }	Boundary Survey.	17 24	-0 18	17 06	Astron. Station, River St. Francis.
47 11	291 04	Oct. 1842.	Boundary Survey.	17 03	-0 13	16 50	Astron. Station, near the mouth of the River St. Francis.
48 25	291 11	1830.	Bayfield.	17 29	+0 24	17 53	Bic Island.
47 16	291 16	Oct. 1842.	Boundary Survey.	17 58	-0 13	17 45	Savage Island.
48 55	291 22	1831.	Bayfield.	18 48	+0 22	19 10	Bersimis Point.
47 17	291 37	Oct. 1842.	Boundary Survey.	17 58	-0 13	17 45	Bourgeois's House.
46 31	291 38	Aug. 1841.	Boundary Survey.	16 43	-0 07	16 36	Mouth of the Massardis River.
47 12	291 46	Aug. 1842.	Boundary Survey.	17 53	-0 12	17 41	Lake Cleveland.
47 19	291 50	Aug. 1843.	Boundary Survey.	18 06	-0 17	17 49	Mouth of Green River.
41 06	292 04	June 1841.	Barnett.	10 08	-0 03	10 05	At sea†.
46 46	292 10	July 1841.	Boundary Survey.	17 27	-0 07	17 20	Near Fort Fairfield.
49 18	292 12	1830.	Bayfield.	19 57	+0 26	20 23	St. Nicholas Harbour.
46 59	292 13	Nov. 1841.	Boundary Survey.	17 43	-0 08	17 35	Peacock Hill.
46 47	292 13	Oct. 1841.	Boundary Survey.	17 28	-0 08	17 20	Aroostook Hill.
46 38	292 13	Oct. 1841.	Boundary Survey.	17 15	-0 08	17 07	Blue Hill.
46 07	292 13	Dec. 1840.	Boundary Survey.	16 09	-0 04	16 05	Parks Hill.
45 57	292 13	Oct. 1840.	Boundary Survey.	16 00*	-0 03	15 57	Astron. Station of the Boundary Commission.
49 04	292 17	1842.	Lefroy.	21 37	-0 08	21 29	At sea†.
49 19	292 37	1830.	Bayfield.	20 13	+0 28	20 41	Port de Monts.
49 38	292 49	1832.	Bayfield.	21 35	+0 24	21 59	Egg Island.
49 06	293 14	1830.	Bayfield.	21 27	+0 28	21 55	Cape Chatte.
41 04	293 19	June 1841.	Barnett.	11 55	-0 03	11 52	At sea†.
49 36	293 21	1842.	Lefroy.	22 30	-0 08	22 22	At sea†.

* "This observation was made at the Astronomical Station on the due north line, 4578 feet north of the Monument marking the source of the River St. Croix. On a Cedar Post 8 inches square erected in 1817 by the Boundary Commissioners under the Treaty of Ghent, at the source of the River St. Croix, is the following inscription :—'Variation 13° 51'·2 by one instrument, and 14° by another,' signed by 'Col. JOSEPH BOUCHETTE, H.B.M. Surveyor, and JOHN JOHNSON, U.S. Surveyor, 31st July, 1817.' The Declination in 1840," (as given above,) "is derived from the following observations made by Lieut.-Col. GRAHAM and Lieut. T. J. LEE :—

Oct. 18 and 19, 1840	By DRAPER's compass No. 4	16° 04'	} Mean 16° 00'
	By STANCLIFFE's compass No. 2	15 58	
	By DRAPER NICOLE's compass No. 1.....	15 59	
	By DRAPER NICOLE's compass No. 2.....	16 01	
	By POTTER's compass No. 3	16 01	
	By Variation Transit	15 59	

"It appears from the comparisons of the two determinations, one in 1817 and the other in 1840, that the West Declination has increased 2° 04'·5 in 23·22 years; or at an average rate of 5'·3 a year."—Lieut.-Col. GRAHAM, MSS.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correction for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of 50° and 40° (continued).							
48° 04'	293° 38'	1839.	Bayfield.	20° 15'	+0° 02'	20° 17'	Dalhousie Island.
48° 05'	293° 52'	1838.	Bayfield.	20° 23'	+0° 07'	20° 30'	Carleton Point.
49° 15'	294° 16'	1828.	Bayfield.	22° 00'	+1° 03'	23° 03'	Mount Louis River.
41° 29'	294° 22'	June 1841.	Barnett.	12° 27'	-0° 05'	12° 22'	At sea†.
48° 01'	294° 25'	1838.	Bayfield.	21° 21'	+0° 08'	21° 29'	Paspebiac.
47° 06'	294° 55'	1837.	Bayfield.	19° 46'	+0° 15'	20° 01'	Vin Island, Miramichi.
41° 28'	294° 57'	June 1841.	Barnett.	13° 05'	-0° 05'	13° 00'	At sea†.
47° 49'	295° 08'	1838.	Bayfield.	21° 30'	+0° 09'	21° 39'	Carquette Island.
46° 43'	295° 12'	1839.	Bayfield.	19° 50'	+0° 03'	19° 53'	Richibucto River.
48° 12'	295° 13'	1837.	Bayfield.	22° 00'	+0° 15'	22° 15'	Point Macquereaw.
47° 45'	295° 17'	1838.	Bayfield.	21° 43'	+0° 09'	21° 52'	Shipfrigan Harbour.
48° 01'	295° 30'	1838.	Bayfield.	20° 35'	+0° 09'	20° 44'	Miscow Harbour.
48° 50'	295° 30'	1846.	Bayfield.	22° 49'	-0° 37'	22° 12'	Gaspé Basin.
41° 28'	295° 34'	June 1841.	Barnett.	13° 08'	-0° 05'	13° 03'	At sea†.
49° 48'	295° 36'	1830.	Bayfield.	24° 22'	+0° 52'	25° 14'	Cape Henry, Anticosti.
46° 15'	295° 37'	1839.	Bayfield.	19° 59'	+0° 03'	20° 02'	Shediac Island.
46° 48'	295° 57'	1845.	Bayfield.	21° 10'	-0° 32'	20° 38'	Cascumpique.
46° 10'	296° 10'	1840.	Bayfield.	20° 00'	-0° 03'	19° 57'	Cape Tormentine.
46° 24'	296° 12'	1841.	Bayfield.	20° 12'	-0° 09'	20° 03'	Bedeque Harbour.
46° 15'	296° 17'	1840.	Bayfield.	20° 18'	-0° 03'	20° 15'	Carleton Head.
46° 34'	296° 17'	1845.	Bayfield.	21° 00'	-0° 33'	20° 27'	Richmond Bay.
45° 53'	296° 19'	1840.	Bayfield.	19° 40'	-0° 03'	19° 37'	Pugwash Harbour.
45° 49'	296° 34'	1840.	Bayfield.	19° 50'	-0° 03'	19° 47'	Wallace Harbour.
46° 30'	296° 40'	1845.	Bayfield.	21° 41'	-0° 33'	21° 08'	Cape Turner.
46° 14'	296° 52'	1842.	Bayfield.	21° 03'	-0° 15'	20° 48'	Charlotte Town.
45° 41'	297° 20'	1841.	Bayfield.	20° 19'	-0° 09'	20° 10'	Pictou Harbour.
46° 11'	297° 27'	1843.	Bayfield.	21° 58'	-0° 21'	21° 37'	George Town.
45° 38'	297° 33'	1842.	Bayfield.	20° 15'	-0° 15'	20° 00'	Merigomish Harbour.
41° 48'	297° 38'	June 1841.	Barnett.	15° 54'	-0° 06'	15° 48'	At sea†.
49° 34'	298° 07'	1842.	Lefroy.	27° 23'	-0° 17'	27° 06'	At sea†.
47° 14'	298° 10'	1833.	Bayfield.	22° 36'	+0° 45'	23° 21'	Amherst Harbour.
49° 08'	298° 18'	1830.	Bayfield.	25° 19'	+1° 07'	26° 26'	East Point (Anticosti).
45° 30'	299° 04'	June 1848.	Kelly.	21° 05'	-0° 59'	20° 06'	Isle Madame.
45° 35'	299° 05'	Sept. 1848.	Kelly.	22° 30'	-0° 59'	21° 31'	Isle Madame.
46° 17'	299° 37'	Aug. 1848.	Kelly.	23° 41'	-0° 59'	22° 42'	St. Ann's Harbour, Cape Breton.
48° 05'	299° 40'	1842.	Lefroy.	26° 47'	-0° 18'	26° 29'	At sea†.
49° 11'	299° 47'	1842.	Lefroy.	28° 16'	-0° 18'	27° 58'	At sea†.
47° 18'	300° 15'	1842.	Lefroy.	25° 17'	-0° 18'	24° 59'	At sea†.
47° 53'	300° 35'	1835.	Bayfield.	25° 00'	+0° 32'	25° 32'	Cod Roy Island.
41° 34'	304° 23'	June 1841.	Barnett.	18° 28'	-0° 09'	18° 19'	At sea†.
46° 13'	304° 53'	1842.	Lefroy.	26° 32'	-0° 23'	26° 09'	At sea†.
45° 52'	306° 49'	1842.	Lefroy.	28° 04'	-0° 23'	27° 41'	At sea†.
41° 50'	307° 14'	Oct. 1839.	Bérard.	19° 00'	+0° 02'	19° 02'	At sea.
47° 34'	307° 19'	1844.	Bayfield.	29° 36'	-0° 43'	28° 53'	St. John's, Newfoundland.
42° 54'	307° 37'	June 1841.	Barnett.	22° 22'	-0° 12'	22° 10'	At sea†.
45° 12'	309° 48'	1842.	Lefroy.	27° 00'	-0° 22'	26° 38'	At sea†.
43° 19'	313° 35'	June 1841.	Barnett.	24° 57'	-0° 12'	24° 45'	At sea†.
43° 34'	314° 42'	Aug. 1842.	Lefroy.	26° 49'	-0° 23'	26° 26'	At sea†.
43° 06'	315° 00'	Aug. 1842.	Lefroy.	26° 15'	-0° 24'	25° 51'	At sea†.
43° 00'	316° 10'	June 1841.	Barnett.	25° 43'	-0° 14'	25° 29'	At sea†.
43° 30'	317° 51'	Oct. 1839.	Bérard.	23° 55'	+0° 03'	23° 58'	At sea†.
44° 33'	318° 47'	Aug. 1842.	Lefroy.	27° 37'	-0° 24'	27° 13'	At sea†.
43° 37'	319° 18'	Aug. 1842.	Lefroy.	28° 17'	-0° 24'	27° 53'	At sea†.
42° 20'	320° 18'	Aug. 1842.	Lefroy.	27° 07'	-0° 22'	26° 45'	At sea†.
42° 59'	321° 28'	Aug. 1842.	Lefroy.	27° 20'	-0° 22'	26° 58'	At sea†.
43° 26'	322° 00'	June 1841.	Barnett.	28° 51'	-0° 12'	28° 39'	At sea†.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correction for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of 50° and 40° (continued).							
44 14	323 22	Aug. 1842.	Lefroy.	28 32	-0 22	28 10	At sea†.
40 32	323 26	Oct. 1837.	Vaillant.	24 52	+0 20	25 12	At sea.
46 09	323 37	Aug. 1842.	Lefroy.	30 38	-0 25	30 13	At sea†.
40 30	323 56	Oct. 1837.	Vaillant.	25 35	+0 20	25 55	At sea.
43 34	324 30	June 1841.	Barnett.	28 22	-0 12	28 10	At sea†.
43 50	324 30	June 1841.	Barnett.	27 12	-0 12	27 00	At sea†.
48 11	324 30	Aug. 1842.	Lefroy.	31 23	-0 25	30 58	At sea†.
42 03	325 11	Oct. 1837.	Vaillant.	24 25	+0 20	24 45	At sea.
40 37	325 13	Oct. 1837.	Vaillant.	26 42	+0 20	27 02	At sea.
47 06	325 40	Aug. 1842.	Lefroy.	32 24	-0 25	31 59	At sea†.
40 55	326 08	Aug. 1830.	Erman.	24 48	+1 16	26 04	At sea.
46 41	326 36	Aug. 1842.	Lefroy.	30 47	-0 22	30 25	At sea†.
41 39	327 19	Aug. 1830.	Erman.	25 16	+1 12	26 28	At sea.
43 26	329 27	Aug. 1830.	Erman.	26 35	+1 08	27 43	At sea.
42 39	329 55	Oct. 1837.	Vaillant.	23 26	+0 15	23 41	At sea.
47 21	330 56	Aug. 1842.	Lefroy.	30 49	-0 18	30 31	At sea†.
44 35	330 57	Aug. 1830.	Erman.	27 36	+1 10	28 46	At sea.
41 37	331 37	1839.	Du Petit-Thouars.	22 07	+0 04	22 11	At sea.
45 41	332 57	Aug. 1830.	Erman.	28 08	+1 02	29 10	At sea.
43 18	333 04	Oct. 1837.	Vaillant.	24 22	+0 13	24 35	At sea.
46 53	334 07	June 1841.	Barnett.	29 40	-0 08	29 32	At sea†.
46 20	335 05	Aug. 1830.	Erman.	28 18	+0 57	29 15	At sea.
47 20	335 09	Aug. 1842.	Lefroy.	31 13	-0 16	30 57	At sea†.
46 49	336 05	June 1841.	Barnett.	30 04	-0 08	29 56	At sea†.
44 03	336 25	Oct. 1837.	Vaillant.	24 20	+0 14	24 34	At sea.
45 45	336 26	Oct. 1839.	Bérard.	25 30	+0 02	25 32	At sea.
47 33	336 56	Aug. 1842.	Lefroy.	31 17	-0 16	31 01	At sea†.
40 35	337 15	1836.	FitzRoy.	25 00	+0 14	25 14	At sea.
46 43	338 23	Oct. 1839.	Bérard.	27 00	+0 01	27 01	At sea.
46 53	338 25	June 1841.	Barnett.	30 51	-0 06	30 45	At sea†.
41 28	338 29	1836.	FitzRoy.	25 38	+0 14	25 52	At sea.
47 03	339 07	Aug. 1830.	Erman.	27 51	+0 45	28 36	At sea.
47 37	339 46	June 1841.	Barnett.	30 30	-0 06	30 24	At sea†.
42 06	339 54	1836.	FitzRoy.	26 00	+0 12	26 12	At sea.
43 14	340 17	June 1839.	Du Petit-Thouars.	22 52	+0 02	22 54	At sea.
48 02	340 55	Aug. 1842.	Lefroy.	30 51	-0 12	30 39	At sea†.
47 55	342 25	June 1841.	Barnett.	28 23	-0 05	28 18	At sea†.
48 11	343 18	June 1841.	Barnett.	29 26	-0 05	29 21	At sea†.
49 16	343 51	Sept. 1846.	Moore.	32 01	-0 20	31 41	At sea†.
44 05	344 05	June 1839.	Du Petit-Thouars.	23 09	+0 02	23 11	At sea.
48 18	344 23	Aug. 1842.	Lefroy.	29 29	-0 08	29 21	At sea†.
47 56	345 03	Aug. 1830.	Erman.	26 19	+0 29	26 48	At sea.
48 34	346 00	June 1841.	Barnett.	28 37	-0 05	28 32	At sea†.
40 15	346 10	1836.	FitzRoy.	24 45	+0 10	24 55	At sea.
41 00	346 30	1836.	FitzRoy.	24 49	+0 10	24 59	At sea.
42 31	347 20	1836.	FitzRoy.	24 18	+0 10	24 28	At sea.
42 37	347 30	1836.	FitzRoy.	23 34	+0 10	23 44	At sea.
43 20	348 00	1836.	FitzRoy.	23 50	+0 10	24 00	At sea.
48 42	348 04	June 1841.	Barnett.	27 22	-0 05	27 17	At sea†.
48 27	348 32	Aug. 1830.	Erman.	26 07	+0 23	26 30	At sea.
48 48	349 28	Aug. 1842.	Lefroy.	27 44	-0 03	27 41	At sea†.
49 25	350 15	Sept. 1846.	Moore.	27 46	0 00	27 46	At sea†.
48 57	350 28	Aug. 1830.	Erman.	25 54	+0 10	26 04	At sea.
46 18	351 54	June 1839.	Du Petit-Thouars.	24 14	0 00	24 14	At sea.
46 38	351 54	Dec. 1842.	Jehenne.	27 10	0 00	27 10	At sea.
49 11	352 22	Aug. 1842.	Lefroy.	26 16	+0 05	26 21	At sea†.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correc- tion for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of 50° and 40° (continued).							
47° 20'	353° 14'	Aug. 1830.	Erman.	25° 10'	0 00'	25° 10'	At sea.
47 44	354 16	Aug. 1830.	Erman.	24 35	0 00	24 35	At sea.
48 09	355 02	June 1839.	Du Petit-Thouars.	24 03	0 00	24 03	At sea.
46 59	355 13	Aug. 1830.	Erman.	24 02	0 00	24 02	At sea.
48 23	355 31	Nov. 1837.	Darondean.	24 58	-0 10	24 48	Brest.
49 58	356 27	Aug. 1842.	Lefroy.	25 18	0 00	25 18	At sea†.
40 22	1 56	June 1838.	Bérard.	20 01	0 00	20 01	At sea.
48 50	2 22	Feb. 1838.	Darondean.	21 38	0 00	21 38	Paris Observatory.
40 13	2 26	Aug. 1842.	Bérard.	19 45	0 00	19 45	At sea.
40 24	2 27	June 1838.	Bérard.	21 29	0 00	21 29	At sea.
40 48	2 30	Aug. 1842.	Bérard.	19 00	0 00	19 00	At sea.
41 11	2 39	Aug. 1842.	Bérard.	19 30	0 00	19 30	At sea.
41 26	3 52	Aug. 1842.	Bérard.	19 30	0 00	19 30	At sea.
41 32	4 18	Aug. 1842.	Bérard.	19 00	0 00	19 00	At sea.
42 04	4 48	Aug. 1842.	Bérard.	18 30	0 00	18 30	At sea.
43 05	5 55	Jan. 1836.	Darondean.	19 16	0 00	19 16	Toulon.
46 12	6 09	Jan. 1843.	Plantamour.	18 57	+0 15	19 12	Geneva.
Between the latitudes of 40° and 30°.							
32 41	280 07	May 1841.	Barnett.	- 2 24	-0 05	- 2 29	Charleston.
30 54	280 15	May 1841.	Barnett.	- 3 07	-0 05	- 3 12	At sea†.
31 54	280 29	May 1841.	Barnett.	- 2 45	-0 05	- 2 50	At sea†.
38 56	283 25	June 1845.	U.S. Coast Survey.	+ 2 14	-0 08	+ 2 06	Annapolis.
33 55	283 57	May 1841.	Barnett.	- 1 25	-0 05	- 1 30	At sea†.
39 22	284 30	June 1846.	U.S. Coast Survey.	+ 3 18	-0 08	+ 3 10	Bombay Hook.
39 25	284 40	June 1846.	U.S. Coast Survey.	2 15	-0 08	2 07	
39 58	284 50	May 1846.	U.S. Coast Survey.	3 51	-0 08	3 43	Girard College.
39 10	284 52	June 1846.	U.S. Coast Survey.	2 59	-0 08	2 51	Egg Island.
38 47	284 54	May 1841.	Barnett.	4 42	-0 05	4 37	Cape Henlopen.
39 15	284 59	June 1846.	U.S. Coast Survey.	3 06	-0 05	3 01	Port Norris.
35 08	285 28	May 1841.	Barnett.	1 57	-0 05	1 52	At sea†.
38 00	285 35	May 1841.	Barnett.	3 51	-0 02	3 49	At sea†.
39 31	285 41	Nov. 1846.	U.S. Coast Survey.	4 24	-0 05	4 19	Tuche Island.
38 45	289 09	May 1841.	Barnett.	6 44	-0 07	6 37	At sea†.
39 18	290 20	May 1841.	Barnett.	6 58	-0 07	6 51	At sea†.
39 37	290 30	May 1841.	Barnett.	7 25	-0 07	7 18	At sea†.
39 52	291 20	May 1841.	Barnett.	7 42	-0 07	7 35	At sea†.
32 23	295 09	Aug. 1846.	Barnett.	6 53	-0 39	6 14	Bermuda.
32 23	295 16	May 1837.	Milne.	6 40	+0 15	6 55	Bermuda.
32 18	300 42	Nov. 1842.	Jehenne.	8 46	-0 18	8 28	At sea.
33 53	318 07	Aug. 1830.	Erman.	17 00	+1 26	18 26	At sea.
34 44	318 13	Aug. 1830.	Erman.	17 03	+1 26	18 29	At sea.
33 39	318 32	Aug. 1830.	Erman.	17 00	+1 26	18 26	At sea.
31 36	318 58	June 1839.	Du Petit-Thouars.	16 00	+0 04	16 04	At sea.
32 53	318 58	Aug. 1830.	Erman.	16 28	+1 26	17 54	At sea.
31 56	319 20	June 1839.	Du Petit-Thouars.	15 52	+0 04	15 56	At sea.
35 59	319 32	Aug. 1830.	Erman.	18 02	+1 26	19 28	At sea.
31 48	319 36	Aug. 1830.	Erman.	15 40	+1 26	17 06	At sea.
30 32	319 45	Aug. 1830.	Erman.	15 03	+1 26	16 29	At sea.
34 04	320 12	June 1839.	Du Petit-Thouars.	17 22	+0 04	17 26	At sea.
30 48	320 16	May 1846.	Sullivan.	17 47	-0 58	16 49	At sea†.
32 10	321 05	May 1846.	Sullivan.	18 15	-0 58	17 17	At sea†.
37 28	321 25	Aug. 1830.	Erman.	19 43	+1 26	21 09	At sea.
30 02	321 27	June 1839.	Du Petit-Thouars.	18 30	+0 04	18 34	At sea.
37 05	321 35	Nov. 1842.	Jehenne.	21 02	-0 22	20 40	At sea.
33 46	322 10	May 1846.	Sullivan.	19 15	-0 55	18 20	At sea†.
35 17	322 14	Oct. 1837.	Vaillant.	18 37	+0 20	18 57	At sea.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declina- tion.	Correc- tion for Epoch.	Corrected Declina- tion.	Remarks.
Between the latitudes of 40° and 30° (continued).							
33 17	322 37	July 1846.	Bérard.	19 13	-0 57	18 16	At sea.
36 18	322 46	Oct. 1837.	Vaillant.	17 33	+0 20	17 53	At sea.
38 43	323 02	Aug. 1830.	Erman.	21 43	+1 20	23 03	At sea.
37 48	323 07	June 1839.	Du Petit-Thouars.	19 57	+0 04	20 01	At sea.
32 11	323 13	July 1846.	Bérard.	18 30	-0 57	17 33	At sea.
33 54	323 14	Oct. 1837.	Vaillant.	18 02	+0 20	18 22	At sea.
32 46	323 41	July 1846.	Bérard.	18 29	-0 55	17 34	At sea.
31 04	324 03	1836.	FitzRoy.	18 28	+0 28	18 56	At sea.
39 15	324 36	Aug. 1830.	Erman.	23 06	+1 16	24 22	At sea.
37 09	324 36	May 1846.	Sullivan.	23 37	-0 52	22 45	At sea†.
30 01	324 39	Oct. 1837.	Vaillant.	18 38	+0 20	18 58	At sea.
32 03	324 55	1836.	FitzRoy.	18 22	+0 28	18 50	At sea.
34 35	325 11	July 1846.	Bérard.	18 34	-0 52	17 40	At sea.
37 40	325 15	May 1846.	Sullivan.	23 50	-0 50	23 00	At sea†.
31 01	325 41	Oct. 1837.	Vaillant.	18 02	+0 19	18 21	At sea.
39 32	325 54	June 1839.	Du Petit-Thouars.	20 55	+0 04	20 59	At sea.
38 10	325 55	May 1846.	Sullivan.	23 21	-0 50	22 31	At sea†.
35 17	326 58	July 1846.	Bérard.	19 49	-0 52	18 57	At sea.
36 38	327 48	July 1846.	Bérard.	20 59	-0 52	20 07	At sea.
35 38	328 28	1836.	FitzRoy.	21 34	+0 26	22 00	At sea.
39 24	328 48	1843-1844	Vidal.	27 30	-0 25	27 05	Flores.
39 41	328 53	1842.	Vidal.	27 30	-0 18	27 12	Corvo.
36 40	330 52	July 1846.	Bérard.	20 42	-0 52	19 50	At sea.
37 15	331 06	1836.	FitzRoy.	22 09	+0 26	22 35	At sea.
39 05	331 56	1843-1844	Vidal.	26 46	-0 25	26 21	Graciosa.
37 49	332 00	1836.	FitzRoy.	24 00	+0 26	24 26	At sea.
38 39	332 47	1836.	FitzRoy.	24 19	+0 26	24 45	Terceira.
38 45	332 52	July 1836.	FitzRoy.	24 21	+0 26	24 47	At sea.
37 44	334 17	May 1831.	Austin.	24 31	+0 54	25 25	St. Michaels.
37 48	334 20	1836.	FitzRoy.	24 15	+0 22	24 37	St. Michaels.
37 46	334 20	1843-1844	Vidal.	25 45	-0 22	25 23	St. Michaels.
36 57	334 55	1843-1844	Vidal.	25 17	-0 22	24 55	Santa Maria.
36 19	339 41	Aug. 1846.	Bérard.	20 51	-0 36	20 15	At sea.
37 05	341 35	Nov. 1842.	Jehenne.	21 02	-0 10	20 52	At sea.
33 00	343 50	1832.	FitzRoy.	23 00	+0 34	23 34	At sea.
37 20	344 30	1836.	FitzRoy.	23 54	+0 14	24 08	At sea.
38 41	345 00	1836.	FitzRoy.	23 35	+0 14	23 49	At sea.
30 02	346 18	Feb. 1836.	Vaillant.	22 24	+0 22	22 46	At sea.
30 41	346 36	Sept. 1842.	Bérard.	22 00	-0 11	21 49	At sea.
31 16	347 32	Sept. 1842.	Bérard.	23 00	-0 11	22 49	At sea.
33 16	348 09	June 1838.	Bérard.	20 01	+0 06	20 07	At sea.
32 19	348 49	Sept. 1842.	Bérard.	22 45	-0 11	22 34	At sea.
33 34	349 06	Feb. 1836.	Vaillant.	24 31	+0 23	24 54	At sea.
33 00	350 05	Sept. 1842.	Bérard.	22 00	-0 08	21 52	At sea.
34 10	351 20	Sept. 1842.	Bérard.	22 00	-0 08	21 52	At sea.
31 57	351 51	June 1838.	Bérard.	20 05	+0 05	20 10	At sea.
35 59	352 14	Feb. 1836.	Vaillant.	22 20	+0 10	22 30	At sea.
35 25	352 16	Aug. 1846.	Bérard.	21 05	-0 15	20 50	At sea.
35 25	353 11	June 1838.	Bérard.	22 13	+0 03	22 16	At sea.
36 11	353 34	Aug. 1846.	Bérard.	20 26	-0 12	20 14	At sea.
35 29	353 47	Aug. 1846.	Bérard.	20 35	-0 12	20 23	At sea.
36 26	356 03	Aug. 1846.	Bérard.	19 15	0 00	19 15	At sea.
35 48	357 00	1842.	Bérard.	18 30	+0 03	18 33	At sea.
36 20	358 52	Aug. 1846.	Bérard.	18 49	+0 10	18 59	At sea.
36 46	358 53	June 1838.	Bérard.	19 47	-0 04	19 43	At sea.
36 28	359 19	Aug. 1846.	Bérard.	19 16	+0 18	19 34	At sea.
36 10	359 40	Aug. 1846.	Bérard.	19 18	+0 18	19 36	At sea.
38 58	1 00	Aug. 1846.	Bérard.	19 48	+0 18	20 06	At sea.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declina- tion.	Correc- tion for Epoch.	Corrected Declina- tion.	Remarks.
Between the latitudes of 30° and 20°.							
37 33	1 15	Aug. 1842.	Bérard.	17 37	+0 07	17 44	At sea.
36 47	3 05	Oct. 1842.	Aime.	18 35	+0 08	18 43	Algiers Magnetic Observatory.
28 22	279 35	May 1841.	Barnett.	- 4 57	-0 05	- 5 02	At sea†.
29 17	280 24	May 1841.	Barnett.	- 4 44	-0 05	- 4 49	At sea†.
25 05	282 39	May 1838.	Milne.	- 3 07	+0 03	- 3 04	Nassau.
20 00	283 57	July 1837.	Milne.	- 3 39	+0 04	- 3 05	St. Jago, Cuba.
21 33	284 15		Milne.	- 4 02	+0 03	- 3 59	San Domingo.
27 55	285 24	Nov. 1842.	Jehenne.	- 2 07	-0 09	- 2 16	At sea.
20 22	285 26		1831. Austin.	- 3 17	+0 12	- 3 05	Barracon, Cuba.
22 07	285 36		1831. Austin.	- 4 27	+0 12	- 4 15	Crooked Island.
22 47	285 39	July 1837.	Milne.	- 2 34	+0 05	- 2 29	Crooked Island.
20 14	285 48		1831. Austin.	- 2 27	+0 12	- 2 15	Cape Maize.
21 26	288 53	Nov. 1845.	Barnett.	- 1 48	-0 12	- 2 00	Turks Island, Bahamas.
28 15	315 50	June 1839.	Du Petit-Thouars.	13 32	+0 04	13 36	At sea.
29 11	316 36	June 1829.	Du Petit-Thouars.	14 16	+0 02	14 18	At sea.
27 51	316 53	June 1839.	Du Petit-Thouars.	13 25	+0 02	13 27	At sea.
26 57	318 08	June 1839.	Du Petit-Thouars.	12 37	+0 02	12 39	At sea.
25 13	319 09	June 1839.	Du Petit-Thouars.	12 30	+0 02	12 32	At sea.
26 32	319 46	May 1846.	Sullivan.	13 17	-0 42	12 35	At sea†.
29 27	319 50	May 1846.	Sullivan.	14 24	-0 42	13 42	At sea†.
24 00	320 08	June 1839.	Du Petit-Thouars.	11 30	+0 03	11 33	At sea.
21 34	320 18	May 1846.	Sullivan.	12 29	-0 42	11 47	At sea†.
20 19	320 45	May 1846.	Sullivan.	11 23	-0 42	10 41	At sea†.
22 34	320 56	June 1839.	Du Petit-Thouars.	11 20	+0 03	11 23	At sea.
28 12	321 08	Aug. 1830.	Erman.	14 33	+1 16	15 49	At sea.
26 23	321 57	Aug. 1830.	Erman.	13 07	+1 03	14 10	At sea.
23 41	322 14		1830. Erman.	11 50	+0 50	12 40	At sea.
29 15	323 40		1836. FitzRoy.	17 10	+0 27	17 37	At sea.
22 48	323 55	July 1838.	Bérard.	9 40	+0 08	9 48	At sea.
28 07	324 00		1836. FitzRoy.	17 06	+0 21	17 27	At sea.
29 52	324 34	July 1846.	Bérard.	17 55	-0 39	17 16	At sea.
21 42	324 35		1830. Erman.	11 58	+0 47	12 45	At sea.
28 13	324 41	July 1846.	Bérard.	17 30	-0 39	16 51	At sea.
27 17	325 13	July 1846.	Bérard.	17 57	-0 39	17 18	At sea.
29 17	325 32	Oct. 1837.	Vaillant.	17 26	+0 18	17 44	At sea.
25 00	325 41		1836. FitzRoy.	16 05	+0 21	16 26	At sea.
26 52	325 52	July 1846.	Bérard.	18 30	-0 39	17 51	At sea.
23 41	326 11		1836. FitzRoy.	15 20	+0 21	15 41	At sea.
25 44	326 34	July 1846.	Bérard.	17 26	-0 39	16 47	At sea.
25 57	327 12	Oct. 1837.	Vaillant.	16 37	+0 15	16 52	At sea.
23 20	327 23	July 1846.	Bérard.	15 19	-0 33	14 46	At sea.
23 02	327 30	July 1838.	Bérard.	10 30	+0 08	10 38	At sea.
21 27	328 42	July 1846.	Bérard.	16 41	+0 33	16 08	At sea.
22 30	329 04	Oct. 1837.	Vaillant.	14 54	+0 12	15 06	At sea.
20 32	330 00	Oct. 1837.	Vaillant.	14 22	+0 12	14 34	At sea.
25 05	330 33	July 1838.	Bérard.	16 44	+0 15	16 59	At sea.
26 12	333 21	July 1838.	Bérard.	17 19	+0 15	17 34	At sea.
20 24	337 11	Sept. 1842.	Bérard.	19 30	-0 15	19 15	At sea.
21 24	338 04	Dec. 1846.	Stanley.	18 14	-0 38	17 36	At sea†.
22 24	338 29	Sept. 1842.	Bérard.	20 00	-0 15	19 45	At sea.
20 18	338 32		1832. FitzRoy.	18 20	+0 45	19 05	At sea.
20 42	338 39		1832. FitzRoy.	18 24	+0 45	19 09	At sea.
23 22	339 08	Dec. 1846.	Stanley.	19 41	-0 41	19 00	At sea†.
21 43	339 20		1832. FitzRoy.	18 30	+0 45	19 15	At sea.
21 10	339 35	Jan. 1837.	Du Petit-Thouars.	18 42	+0 18	19 00	At sea.
22 22	340 04	Nov. 1839.	Ross.	19 25	0 00	19 25	At sea†.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correc- tion for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of 30° and 20° (continued).							
23 09	340 13	1832.	FitzRoy.	18 47	+0 44	19 31	At sea.
22 01	340 16	Feb. 1836.	Vaillant.	20 08	+0 24	20 32	At sea.
21 50	340 28	Jan. 1837.	Du Petit-Thouars.	20 03	+0 16	20 19	At sea.
23 38	340 43	Nov. 1839.	Ross.	19 30	0 00	19 30	At sea†.
23 50	340 51	Nov. 1839.	Ross.	19 12	0 00	19 12	At sea†.
26 17	340 59	Sept. 1842.	Bérard.	21 00	-0 15	20 45	At sea.
23 31	341 10	Jan. 1837.	Du Petit-Thouars.	19 55	+0 16	20 11	At sea.
24 31	341 17	Nov. 1839.	Ross.	20 15	0 00	20 15	At sea†.
24 40	341 18	1832.	FitzRoy.	19 53	+0 41	20 34	At sea.
23 37	341 31	Feb. 1836.	Vaillant.	21 02	+0 21	21 23	At sea.
25 33	341 55	Nov. 1839.	Ross.	21 33	0 00	21 33	At sea†.
25 26	341 58	1832.	FitzRoy.	19 59	+0 41	20 40	At sea.
24 58	342 56	Feb. 1836.	Vaillant.	20 35	+0 21	20 56	At sea.
27 59	343 01	Sept. 1842.	Bérard.	21 00	-0 15	20 45	At sea.
26 59	343 12	1832.	FitzRoy.	20 04	+0 41	20 45	At sea.
28 12	343 40	1832.	FitzRoy.	20 20	+0 41	21 01	At sea.
29 31	343 40	1832.	FitzRoy.	20 44	+0 41	21 25	At sea.
28 26	343 44	Nov. 1839.	Ross.	20 31	0 00	20 31	At sea†.
28 28	343 45	1837.	Vidal.	22 40	+0 10	22 50	Santa Cruz.
26 15	344 06	Feb. 1836.	Vaillant.	22 16	+0 15	22 31	At sea.
27 22	344 38	Feb. 1836.	Vaillant.	21 44	+0 15	21 59	At sea.
29 15	345 16	Sept. 1842.	Bérard.	22 00	-0 10	21 50	At sea.
29 12	346 05	Feb. 1836.	Vaillant.	22 02	+0 15	22 17	At sea.
Between the latitudes of 20° and 10°.							
17 56	283 09	April 1847.	Barnett.	- 3 40	-0 10	- 3 50	Jamaica.
17 56	283 09	Oct. 1837.	Milne.	- 4 18	+0 03	- 4 15	Jamaica.
17 55	283 44	1831.	Austin.	- 5 13	+0 12	- 5 01	Point Morant.
10 25	284 25	Sept. 1837.	Milne.	- 5 41	+0 04	- 5 37	Carthagena.
19 55	284 45	July 1837.	Milne.	- 3 31	+0 05	- 3 26	Cumberland Harbour.
11 15	285 45	Sept. 1837.	Milne.	- 5 29	+0 04	- 5 25	Santa Martha.
19 39	295 51	July 1838.	Bérard.	- 0 01	+0 03	+ 0 02	At sea.
18 14	296 51	1846.	Barnett.	- 0 56	-0 12	- 1 08	Anguilla Island.
17 08	298 08	Nov. 1840.	Milne.	- 0 42	-0 01	- 0 43	Antigua.
17 08	298 08	Jan. 1848.	Barnett.	- 0 46	-0 16	- 1 02	Antigua.
13 05	300 22	Nov. 1839.	Milne.	- 1 13	0 00	- 1 13	Barbadoes.
13 05	300 24	1846.	Schomburgk.	- 1 27	-0 12	- 1 39	Barbadoes.
18 18	321 24	May 1846.	Sullivan.	+11 24	-0 32	+10 52	At sea†.
17 02	321 51	May 1846.	Sullivan.	9 38	-0 32	9 06	At sea†.
19 19	321 51	May 1839.	Du Petit-Thouars.	11 56	+0 02	11 58	At sea.
15 21	322 28	May 1846.	Sullivan.	10 49	-0 35	10 14	At sea†.
16 36	323 27	May 1839.	Du Petit-Thouars.	11 13	+0 02	11 15	At sea.
13 55	325 01	May 1839.	Du Petit-Thouars.	11 34	+0 02	11 36	At sea.
11 58	327 30	May 1839.	Du Petit-Thouars.	11 42	+0 03	11 45	At sea.
16 20	328 52	July 1830.	Erman.	12 36	+0 54	13 30	At sea.
18 57	329 36	July 1830.	Erman.	13 02	+0 50	13 52	At sea.
19 22	329 41	July 1846.	Bérard.	15 08	-0 38	14 30	At sea.
15 13	329 56	July 1830.	Erman.	13 08	+0 57	14 05	At sea.
17 17	330 40	July 1846.	Bérard.	17 16	-0 33	16 43	At sea.
18 31	330 57	Oct. 1837.	Vaillant.	14 04	+0 14	14 18	At sea.
14 01	331 11	July 1830.	Erman.	12 40	+1 01	13 41	At sea.
12 51	331 31	July 1830.	Erman.	12 55	+1 01	13 56	At sea.
11 53	331 43	July 1830.	Erman.	12 56	+1 01	13 57	At sea.
16 39	332 16	Oct. 1837.	Vaillant.	14 20	+0 15	14 35	At sea.
10 36	333 00	July 1830.	Erman.	13 33	+1 01	14 34	At sea.
12 17	333 35	May 1832.	FitzRoy.	13 43	+0 49	14 32	At sea.
14 49	333 41	Oct. 1837.	Vaillant.	14 32	+0 15	14 47	At sea.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correction for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of 20° and 10° (continued).							
13° 36'	334° 16'	July 1846.	Bérard.	17° 04'	— 0° 40'	16° 24'	At sea.
13° 02'	334° 21'	Sept. 1842.	Bérard.	13° 00'	— 0° 17'	12° 47'	At sea.
13° 38'	334° 26'	Sept. 1842.	Bérard.	13° 50'	— 0° 17'	13° 37'	At sea.
11° 13'	334° 36'	Sept. 1842.	Bérard.	15° 00'	— 0° 17'	14° 47'	At sea.
13° 20'	334° 40'	May 1832.	FitzRoy.	14° 49'	+ 0° 49'	15° 38'	At sea.
13° 55'	334° 40'	Oct. 1837.	Vaillant.	15° 06'	+ 0° 15'	15° 18'	At sea.
16° 35'	334° 42'	Sept. 1842.	Bérard.	17° 00'	— 0° 17'	16° 47'	At sea.
10° 00'	334° 44'	Nov. 1839.	Ross.	15° 47'	0° 00'	15° 47'	At sea†.
12° 46'	335° 25'	Sept. 1837.	Vaillant.	15° 23'	+ 0° 14'	15° 37'	At sea.
12° 12'	335° 30'	Nov. 1839.	Ross.	16° 26'	0° 00'	16° 26'	At sea†.
15° 29'	336° 08'	1832.	FitzRoy.	15° 52'	+ 0° 49'	16° 41'	At sea.
14° 43'	336° 21'	1836.	FitzRoy.	17° 02'	+ 0° 21'	17° 23'	At sea.
15° 17'	336° 25'	1832.	FitzRoy.	15° 22'	+ 0° 49'	16° 11'	At sea.
10° 13'	336° 28'	Jan. 1837.	Du Petit-Thouars.	16° 59'	+ 0° 18'	17° 17'	At sea.
14° 56'	336° 28'	Nov. 1839.	Ross.	16° 26'	0° 00'	16° 26'	At sea†.
14° 54'	336° 30'	1831.	FitzRoy.	16° 30'	+ 0° 55'	17° 25'	Port Praya.
13° 36'	336° 37'	July 1846.	Bérard.	17° 04'	— 0° 39'	16° 25'	At sea.
15° 49'	336° 40'	Jan. 1847.	Stanley.	18° 04'	— 0° 42'	17° 22'	At sea†.
11° 59'	336° 47'	Sept. 1837.	Vaillant.	16° 42'	+ 0° 14'	16° 56'	At sea.
12° 17'	336° 48'	Jan. 1847.	Stanley.	15° 55'	— 0° 42'	15° 13'	At sea†.
17° 50'	336° 50'	1832.	FitzRoy.	17° 06'	+ 1° 00'	18° 06'	At sea.
19° 02'	336° 51'	Jan. 1847.	Stanley.	20° 35'	— 0° 42'	19° 53'	At sea†.
11° 37'	337° 00'	Jan. 1846.	Bérard.	16° 12'	— 0° 39'	15° 33'	At sea.
13° 16'	337° 21'	Jan. 1837.	Du Petit-Thouars.	17° 32'	+ 0° 18'	17° 50'	At sea.
12° 48'	337° 39'	July 1846.	Bérard.	17° 35'	— 0° 42'	16° 53'	At sea.
19° 06'	337° 43'	1832.	FitzRoy.	17° 39'	+ 0° 45'	18° 24'	At sea.
18° 42'	337° 50'	Nov. 1839.	Ross.	17° 58'	0° 00'	17° 58'	At sea†.
19° 31'	338° 03'	1832.	FitzRoy.	18° 06'	+ 0° 45'	18° 51'	At sea.
11° 05'	338° 03'	Sept. 1837.	Vaillant.	16° 13'	+ 0° 15'	16° 28'	At sea.
10° 11'	338° 56'	Sept. 1837.	Vaillant.	16° 27'	+ 0° 15'	16° 42'	At sea.
11° 05'	338° 59'	Sept. 1837.	Vaillant.	16° 36'	+ 0° 15'	16° 51'	At sea.
16° 51'	339° 39'	Feb. 1836.	Vaillant.	19° 48'	+ 0° 26'	20° 14'	At sea.
10° 48'	339° 41'	Sept. 1837.	Vaillant.	16° 06'	+ 0° 15'	16° 21'	At sea.
13° 41'	339° 42'	Mar. 1836.	Vaillant.	17° 12'	+ 0° 25'	17° 37'	At sea.
19° 40'	340° 09'	Feb. 1836.	Vaillant.	19° 47'	+ 0° 25'	20° 12'	At sea.
11° 40'	344° 15'	Oct. 1846.	Denham.	19° 12'	— 0° 40'	18° 32'	Guancho.
11° 33'	344° 21'	Sept. 1846.	Denham.	19° 10'	— 0° 40'	18° 30'	Bulama.
11° 52'	344° 23'	Sept. 1846.	Denham.	20° 13'	— 0° 40'	19° 33'	Bissao.
Between the latitudes of 10° and 0°.							
6° 44'	298° 45'	Jan. 1843.	Schomburgk.	— 3° 59'	— 0° 06'	— 4° 05'	{ Fork of Wenama and Cuguori Rivers. Near Mount Roraima. Macusi Village, Pakaraima Mts.
4° 57'	298° 59'	Nov. 1842.	Schomburgk.	— 4° 11'	— 0° 06'	— 4° 17'	
4° 17'	299° 42'	Oct. 1842.	Schomburgk.	— 4° 00'	— 0° 05'	— 4° 05'	
3° 22'	299° 48'	Sept. 1842.	Schomburgk.	— 4° 37'	— 0° 05'	— 4° 42'	{ Junction of Cotinger and Tauter Rivers. River Guainia.
8° 25'	300° 24'	April 1841.	Schomburgk.	— 2° 50'	— 0° 03'	— 2° 53'	
3° 39'	300° 40'	Mar. 1842.	Schomburgk.	— 4° 00'	— 0° 05'	— 4° 5'	Pirara, River Rupunuri.
6° 24'	301° 18'	Dec. 1843.	Schomburgk.	— 3° 06'	— 0° 08'	— 3° 14'	Penal Settlement.
6° 49'	301° 49'	Sept. 1841.	Schomburgk.	— 2° 44'	— 0° 03'	— 2° 47'	Georgetown.
1° 25'	301° 54'	July 1843.	Schomburgk.	— 3° 57'	— 0° 05'	— 4° 02'	Rio Trombetas.
2° 02'	303° 32'	Aug. 1843.	Schomburgk.	— 3° 40'	— 0° 06'	— 3° 46'	Pianogholo Village.
9° 39'	326° 10'	May 1846.	Sullivan.	+ 12° 47'	— 0° 39'	+ 12° 08'	At sea†.
2° 04'	329° 37'	July 1830.	Erman.	10° 12'	+ 1° 11'	11° 23'	At sea.
4° 01'	329° 42'	July 1830.	Erman.	11° 08'	+ 1° 11'	12° 19'	At sea.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correction for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of 10° and 0° (continued).							
5 30	329 48	May 1846.	Sullivan.	13 57	-0 51	13 06	At sea†.
4 45	330 08	May 1846.	Sullivan.	12 53	-0 51	12 02	At sea†.
2 05	330 11	May 1846.	Sullivan.	12 45	-0 51	11 54	At sea†.
8 22	330 16	May 1839.	Du Petit-Thouars.	13 04	+0 05	13 09	At sea.
0 55	330 36	Dec. 1832.	FitzRoy.	8 22	+0 56	9 18	At sea.
0 55	330 42	Dec. 1839.	Ross.	11 50	0 00	11 50	St. Paul's Rocks.
3 39	330 49	July 1836.	FitzRoy.	10 27	+0 28	10 55	At sea.
2 32	330 53	Dec. 1836.	FitzRoy.	10 23	+0 24	10 47	At sea.
1 20	330 55	Dec. 1832.	FitzRoy.	10 39	+0 56	11 35	At sea.
3 48	330 58	May 1846.	Sullivan.	13 04	-0 51	12 13	At sea†.
2 49	331 06	May 1846.	Sullivan.	12 58	-0 51	12 07	At sea†.
1 57	331 38	Nov. 1839.	Ross.	13 16	0 00	13 16	At sea†.
2 10	332 10	Dec. 1832.	FitzRoy.	11 08	+0 56	12 04	At sea.
3 18	332 46	Nov. 1839.	Ross.	12 18	0 00	12 18	At sea†.
5 45	332 49	1836.	FitzRoy.	11 26	+0 28	11 54	At sea.
8 50	332 58	1832.	FitzRoy.	12 44	+0 56	13 40	At sea.
5 26	332 59	May 1839.	Du Petit-Thouars.	14 30	+0 05	14 35	At sea.
8 58	333 21	July 1830.	Erman.	12 21	+1 01	13 22	At sea.
6 46	333 52	Nov. 1839.	Ross.	14 58	0 00	14 58	At sea†.
3 37	333 52	Jan. 1837.	Du Petit-Thouars.	13 19	+0 24	13 43	At sea.
5 13	334 35	Jan. 1837.	Du Petit-Thouars.	15 14	+0 24	15 38	At sea.
2 51	334 38	May 1839.	Du Petit-Thouars.	14 10	+0 05	14 15	At sea.
9 36	335 04	Sept. 1842.	Bérard.	15 00	-0 17	14 43	At sea.
7 24	335 32	Jan. 1837.	Du Petit-Thouars.	16 02	+0 19	16 21	At sea.
0 09	335 35	May 1839.	Du Petit-Thouars.	14 53	+0 05	14 58	At sea.
8 19	336 05	Sept. 1842.	Bérard.	15 30	-0 17	15 13	At sea.
7 09	336 51	Sept. 1842.	Bérard.	15 30	-0 17	15 13	At sea.
6 48	336 52	Sept. 1842.	Bérard.	14 00	-0 17	13 43	At sea.
9 24	337 22	Jan. 1847.	Stanley.	16 06	-0 45	15 21	At sea†.
6 40	337 22	Jan. 1847.	Stanley.	16 52	-0 49	16 03	At sea†.
5 50	337 25	July 1846.	Bérard.	15 11	-0 45	14 26	At sea.
5 26	337 33	Jan. 1847.	Stanley.	17 00	-0 49	16 11	At sea†.
1 11	337 35	Jan. 1847.	Stanley.	16 14	-0 49	15 25	At sea†.
4 38	338 00	Sept. 1842.	Bérard.	15 00	-0 17	14 43	At sea.
4 34	338 02	Jan. 1847.	Stanley.	17 00	-0 49	16 11	At sea†.
1 19	338 07	Oct. 1842.	Bérard.	16 30	-0 19	16 11	At sea.
2 08	338 09	Jan. 1847.	Stanley.	16 07	-0 56	15 11	At sea†.
4 19	338 14	Jan. 1847.	Stanley.	16 31	-0 56	15 35	At sea†.
4 56	338 38	Sept. 1842.	Bérard.	14 20	-0 19	14 01	At sea.
8 45	338 53	Mar. 1836.	Vaillant.	17 13	+0 23	17 36	At sea.
9 33	339 19	Sept. 1837.	Vaillant.	16 46	+0 15	17 01	At sea.
5 17	339 20	Sept. 1842.	Bérard.	15 00	+0 19	15 19	At sea.
6 21	339 21	Mar. 1836.	Vaillant.	17 13	+0 23	17 36	At sea.
8 48	339 24	Sept. 1837.	Vaillant.	16 39	+0 15	16 54	At sea.
0 46	339 26	Jan. 1846.	Bérard.	16 46	-0 49	15 57	At sea.
3 14	340 09	Sept. 1842.	Bérard.	15 30	-0 18	15 12	At sea.
2 50	340 13	Mar. 1836.	Vaillant.	17 47	+0 23	18 10	At sea.
0 43	340 14	Mar. 1836.	Vaillant.	17 12	+0 23	17 35	At sea.
2 50	340 40	Sept. 1842.	Bérard.	15 30	-0 18	15 12	At sea.
8 21	340 55	Sept. 1837.	Bérard.	17 21	+0 15	17 36	At sea.
6 18	341 50	Sept. 1837.	Bérard.	16 18	+0 15	16 33	At sea.
4 30	342 06	Sept. 1837.	Bérard.	16 42	+0 15	16 57	At sea.
0 34	343 22	Sept. 1837.	Bérard.	17 15	+0 14	17 29	At sea.
9 27	346 12	Jan. 1836.	Vidal.	17 43	+0 24	18 07	Isles de Los.
8 30	346 44	Feb. 1836.	Vidal.	18 52	+0 24	19 16	Sierra Leone.
8 30	346 44	June 1836.	Vidal.	19 06	+0 21	19 27	Sierra Leone.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correction for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of 10° and 0° (continued).							
8 30	346 44	Dec. 1836.	Vidal.	20 12	+ 0 18	20 30	Sierra Leone.
8 30	346 44	Sept. 1836.	Denham.	19 36	- 0 33	19 03	Sierra Leone.
7 39	346 56	Dec. 1836.	Vidal.	19 17	+ 0 18	19 35	Moot Island.
7 00	348 21	Dec. 1837.	Vidal.	18 53	+ 0 11	19 04	Gallinas.
6 19	349 11	Dec. 1837.	Vidal.	19 29	+ 0 11	19 40	Cape Mesurada.
6 09	349 11	Jan. 1837.	Vidal.	20 07	+ 0 16	20 23	Mourovia.
4 22	352 16	Feb. 1836.	Vidal.	20 00	+ 0 11	20 11	Cape Palmas.
4 22	352 16	Dec. 1845.	Denham.	19 05	- 0 18	18 47	Cape Palmas.
4 45	357 54	May 1837.	Vidal.	20 03	0 00	20 03	Cape Three Points.
4 48	358 03	April 1838.	Vidal.	20 37	0 00	20 37	Dix Cove.
5 06	358 46	April 1838.	Vidal.	20 11	0 00	20 11	Cape-Coast Castle.
5 10	358 54	April 1838.	Vidal.	20 13	0 00	20 13	Annamaboe.
5 32	359 49	April 1838.	Vidal.	20 18	0 00	20 18	Accra.
5 32	359 49	Jan. 1846.	Denham.	20 39	0 00	20 39	Accra.
5 55	1 00	May 1846.	Denham.	19 55	0 00	19 55	Quitta.
6 13	1 36	Jan. 1846.	Denham.	20 21	0 00	20 21	Little Popoe.
6 19	2 05	Jan. 1846.	Denham.	20 08	0 00	20 08	Whydah.
6 24	2 53	Jan. 1846.	Denham.	20 30	0 00	20 30	Badagry.
4 32	5 41	May 1846.	Denham.	19 50	0 00	19 50	Middleton River.
7 07	7 49	1835.	Allen.	19 51	0 00	19 51	Sterling.
3 46	8 45	Mar. 1836.	Vidal.	19 45	0 00	19 45	Point William.
3 35	8 45	Mar. 1836.	Vidal.	19 50	0 00	19 50	Fernando Po.
3 46	8 48	Jan. 1846.	Denham.	19 04	0 00	19 04	Fernando Po.
6 27	9 13	1835.	Allen.	20 36	0 00	20 36	Rabba.
0 55	9 20	Mar. 1836.	Vidal.	20 04	0 00	20 04	Corisco Bay.
3 55	9 30	April 1836.	Vidal.	19 46	0 00	19 46	Cameroons River.
Between the latitudes of 0° and -10°.							
-1 28	311 36	Sept. 1830.	Foster.	- 1 14	+ 0 57	- 0 17	Para.
-2 31	315 48	Aug. 1830.	Foster.	+ 0 31	+ 0 57	+ 1 28	Maranham.
-0 58	319 26	Aug. 1842.	Jehenne.	5 47	- 0 17	5 30	At sea.
-3 18	321 36	Aug. 1842.	Jehenne.	6 24	- 0 17	6 07	At sea.
-3 41	323 46	Aug. 1842.	Jehenne.	6 47	- 0 19	6 28	At sea.
-8 04	325 08	Aug. 1836.	FitzRoy.	5 54	+ 0 34	6 28	Pernambuco.
-8 03	325 10	Aug. 1836.	FitzRoy.	5 10	+ 0 34	5 44	At sea.
-7 28	326 48	Jan. 1837.	Du Petit-Thouars.	9 45	+ 0 28	10 13	At sea.
-3 51	327 26	Jan. 1837.	Du Petit-Thouars.	9 30	+ 0 27	9 57	At sea.
-7 16	327 27	Dec. 1839.	Ross.	8 57	0 00	8 57	At sea†.
-3 51	327 35	Feb. 1832.	FitzRoy.	7 53	+ 1 21	9 14	Fernando de Noronha.
-2 36	327 52	Jan. 1837.	Du Petit-Thouars.	10 10	+ 0 27	10 37	At sea.
-3 09	327 58	Feb. 1832.	FitzRoy.	7 54	+ 1 20	9 14	At sea.
-5 04	327 59	Feb. 1832.	FitzRoy.	7 45	+ 1 20	9 05	At sea.
-9 40	328 01	July 1830.	Erman.	8 39	+ 1 35	10 14	At sea.
-3 29	328 03	Feb. 1832.	FitzRoy.	8 00	+ 1 15	9 15	At sea.
-9 47	328 07	Dec. 1839.	Ross.	8 39	0 00	8 39	At sea†.
-7 57	328 31	July 1830.	Erman.	9 01	+ 1 38	10 39	At sea.
-3 02	328 41	Dec. 1839.	Ross.	10 15	0 00	10 15	At sea†.
-6 21	328 57	July 1830.	Erman.	8 53	+ 1 38	10 31	At sea.
-9 47	329 04	May 1846.	Sullivan.	9 03	- 1 14	7 49	At sea†.
-8 18	329 05	May 1846.	Sullivan.	9 27	- 1 14	8 13	At sea†.
-5 02	329 06	Aug. 1842.	Jehenne.	9 27	- 0 27	9 00	At sea.
-6 46	329 07	May 1846.	Sullivan.	9 46	- 1 05	8 41	At sea†.
-3 18	329 11	May 1846.	Sullivan.	9 50	- 1 00	8 50	At sea†.
-5 10	329 16	May 1846.	Sullivan.	9 46	- 1 04	8 42	At sea†.
-3 23	329 16	July 1830.	Erman.	9 17	+ 1 25	10 42	At sea.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correc- tion for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of 0° and -10° (continued).							
- 1 04	329 20	Jan. 1837.	Du Petit-Thouars.	12 20	+ 0 26	12 46	At sea.
- 1 21	329 29	July 1830.	Erman.	9 19	+ 1 21	10 40	At sea.
- 2 50	329 34	May 1846.	Sullivan.	10 18	- 1 00	9 18	At sea†.
- 0 35	329 42	July 1830.	Erman.	9 51	+ 1 21	11 12	At sea.
- 0 28	329 42	Feb. 1832.	FitzRoy.	8 10	+ 1 15	9 25	At sea.
- 0 01	330 01	Feb. 1832.	FitzRoy.	8 58	+ 1 15	10 13	At sea.
- 0 46	330 03	May 1846.	Sullivan.	10 54	- 0 55	9 59	At sea†.
- 0 07	330 08	Dec. 1839.	Ross.	10 35	0 00	10 35	At sea†.
- 9 18	330 30	Oct. 1842.	Bérard.	11 00	- 0 27	10 33	At sea.
- 7 47	330 48	Jan. 1847.	Stanley.	13 41	- 1 17	12 24	At sea†.
- 5 59	331 08	Aug. 1842.	Jehenne.	13 04	- 0 25	12 39	At sea.
- 7 02	332 02	Oct. 1842.	Bérard.	13 00	- 0 25	12 35	At sea.
- 4 58	332 10	Jan. 1847.	Stanley.	14 34	- 1 11	13 23	At sea†.
- 8 02	333 44	Sept. 1836.	Vaillant.	11 30	+ 0 33	12 03	At sea.
- 2 34	333 50	Jan. 1847.	Stanley.	14 27	- 1 05	13 22	At sea†.
- 3 10	334 09	Oct. 1842.	Bérard.	15 45	- 0 24	15 21	At sea.
- 1 40	335 01	Oct. 1842.	Bérard.	15 00	- 0 24	14 36	At sea.
- 5 15	335 26	1836.	Vaillant.	13 46	+ 0 35	14 21	At sea.
- 0 41	335 40	Oct. 1842.	Bérard.	15 00	- 0 24	14 36	At sea.
- 7 48	335 46	Aug. 1842.	Jehenne.	14 29	- 0 26	14 03	At sea.
- 0 19	335 50	Jan. 1847.	Stanley.	15 05	- 1 10	13 55	At sea†.
- 1 52	336 43	May 1839.	Du Petit-Thouars.	14 48	+ 0 04	14 52	At sea.
- 3 38	337 28	Mar. 1836.	Vaillant.	14 30	+ 0 36	15 06	At sea.
- 3 18	338 45	May 1839.	Du Petit-Thouars.	15 58	+ 0 04	16 02	At sea.
- 1 15	340 01	Mar. 1836.	Vaillant.	14 37	+ 0 33	15 10	At sea.
- 0 40	340 10	Jan. 1846.	Bérard.	17 17	- 0 52	16 25	At sea.
- 2 56	341 10	Jan. 1846.	Bérard.	17 47	- 0 52	16 55	At sea.
- 4 29	341 16	May 1839.	Du Petit-Thouars.	16 33	+ 0 05	16 38	At sea.
- 9 30	342 28	1836.	FitzRoy.	15 56	+ 0 35	16 31	At sea.
- 4 45	342 39	Jan. 1846.	Bérard.	19 01	- 0 54	18 07	At sea.
- 5 55	344 18	May 1839.	Du Petit-Thouars.	18 46	+ 0 05	18 51	At sea.
- 6 38	344 19	Jan. 1846.	Bérard.	19 27	- 0 54	18 33	At sea.
- 1 51	344 47	Sept. 1837.	Vaillant.	17 47	+ 0 20	18 07	At sea.
- 0 44	344 58	Sept. 1837.	Vaillant.	17 34	+ 0 20	17 54	At sea.
- 5 12	345 04	Sept. 1837.	Vaillant.	18 52	+ 0 22	19 14	At sea.
- 2 56	345 13	Sept. 1837.	Vaillant.	17 53	+ 0 20	18 13	At sea.
- 7 55	345 35	June 1846.	Bérard.	19 16	- 0 58	18 18	Anchorage, Ascension.
- 7 54	345 36	May 1839.	Du Petit-Thouars.	18 31	+ 0 04	18 35	Anchorage, Ascension.
- 7 54	345 36	1836.	FitzRoy.	17 36	+ 0 31	18 07	Anchorage, Ascension.
- 7 11	345 39	Sept. 1837.	Vaillant.	19 13	+ 0 20	19 33	At sea.
- 8 17	346 09	May 1839.	Du Petit-Thouars.	18 54	+ 0 04	18 58	At sea.
- 8 49	346 30	Sept. 1837.	Vaillant.	17 58	+ 0 20	18 18	At sea.
- 9 52	347 26	1836.	FitzRoy.	17 43	+ 0 31	18 14	At sea.
- 9 30	347 48	June 1846.	Bérard.	19 16	- 0 58	18 18	At sea.
- 9 49	347 55	May 1839.	Du Petit-Thouars.	19 37	+ 0 04	19 41	At sea.
- 1 21	5 38	1829.	Boteler.	21 01	+ 0 31	21 32	Anno Bona.
Between the latitudes of -10° and -20°.							
-18 25	321 05	Dec. 1843.	Pasley.	3 10	- 0 38	2 32	At sea.
-18 14	321 08	1832.	FitzRoy.	1 04	+ 1 10	2 14	At sea.
-17 13	321 12	1832.	FitzRoy.	1 08	+ 1 10	2 18	At sea.
-16 35	321 12	1832.	FitzRoy.	1 52	+ 1 10	3 02	At sea.
-18 59	321 16	1832.	FitzRoy.	1 14	+ 1 10	2 24	At sea.
-17 58	321 18	Mar. 1832.	FitzRoy.	2 00	+ 1 13	3 13	Abrolhos Island.
-15 01	321 19	1832.	FitzRoy.	1 30	+ 1 10	2 40	At sea.
-13 25	321 23	1832.	FitzRoy.	2 08	+ 1 10	3 18	At sea.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correction for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of -10° and -20° (continued).							
$-18^{\circ} 03'$	$321^{\circ} 24'$	1832.	FitzRoy.	$2^{\circ} 12'$	$+1^{\circ} 10'$	$3^{\circ} 22'$	At sea.
$-13^{\circ} 11'$	$321^{\circ} 29'$	1832.	FitzRoy.	$2^{\circ} 09'$	$+1^{\circ} 10'$	$3^{\circ} 19'$	At sea.
$-12^{\circ} 59'$	$321^{\circ} 29'$	Feb. 1832.	FitzRoy.	$4^{\circ} 18'$	$+1^{\circ} 14'$	$5^{\circ} 32'$	Bahia.
$-12^{\circ} 59'$	$321^{\circ} 30'$	Oct. 1842.	Bérard.	$3^{\circ} 30'$	$-0^{\circ} 25'$	$3^{\circ} 05'$	At sea.
$-13^{\circ} 09'$	$321^{\circ} 30'$	1836.	FitzRoy.	$2^{\circ} 44'$	$+0^{\circ} 33'$	$3^{\circ} 17'$	At sea.
$-13^{\circ} 33'$	$321^{\circ} 35'$	1832.	FitzRoy.	$1^{\circ} 34'$	$+1^{\circ} 10'$	$2^{\circ} 44'$	At sea.
$-15^{\circ} 27'$	$321^{\circ} 36'$	1832.	FitzRoy.	$2^{\circ} 48'$	$+1^{\circ} 10'$	$3^{\circ} 58'$	At sea.
$-16^{\circ} 20'$	$321^{\circ} 36'$	1832.	FitzRoy.	$1^{\circ} 59'$	$+1^{\circ} 10'$	$3^{\circ} 09'$	At sea.
$-13^{\circ} 39'$	$321^{\circ} 36'$	Oct. 1842.	Bérard.	$4^{\circ} 00'$	$-0^{\circ} 25'$	$3^{\circ} 35'$	At sea.
$-17^{\circ} 33'$	$321^{\circ} 37'$	1832.	FitzRoy.	$2^{\circ} 16'$	$+1^{\circ} 10'$	$3^{\circ} 26'$	At sea.
$-14^{\circ} 42'$	$321^{\circ} 38'$	1832.	FitzRoy.	$2^{\circ} 20'$	$+1^{\circ} 10'$	$3^{\circ} 30'$	At sea.
$-14^{\circ} 22'$	$321^{\circ} 51'$	Oct. 1842.	Bérard.	$4^{\circ} 30'$	$-0^{\circ} 25'$	$4^{\circ} 05'$	At sea.
$-12^{\circ} 38'$	$322^{\circ} 14'$	1836.	FitzRoy.	$3^{\circ} 14'$	$+0^{\circ} 32'$	$3^{\circ} 46'$	At sea.
$-16^{\circ} 25'$	$322^{\circ} 21'$	Oct. 1842.	Bérard.	$3^{\circ} 00'$	$-0^{\circ} 25'$	$2^{\circ} 35'$	At sea.
$-17^{\circ} 54'$	$322^{\circ} 29'$	1832.	FitzRoy.	$2^{\circ} 20'$	$+1^{\circ} 10'$	$3^{\circ} 30'$	At sea.
$-12^{\circ} 42'$	$322^{\circ} 35'$	Oct. 1842.	Bérard.	$7^{\circ} 00'$	$-0^{\circ} 25'$	$6^{\circ} 35'$	At sea.
$-15^{\circ} 20'$	$322^{\circ} 38'$	1832.	FitzRoy.	$3^{\circ} 03'$	$+1^{\circ} 10'$	$4^{\circ} 13'$	At sea.
$-12^{\circ} 42'$	$322^{\circ} 45'$	1836.	FitzRoy.	$3^{\circ} 31'$	$+0^{\circ} 32'$	$4^{\circ} 03'$	At sea.
$-16^{\circ} 29'$	$323^{\circ} 03'$	1832.	FitzRoy.	$3^{\circ} 44'$	$+1^{\circ} 10'$	$4^{\circ} 54'$	At sea.
$-17^{\circ} 42'$	$323^{\circ} 06'$	Oct. 1842.	Bérard.	$4^{\circ} 30'$	$-0^{\circ} 27'$	$4^{\circ} 03'$	At sea.
$-12^{\circ} 48'$	$323^{\circ} 13'$	1836.	FitzRoy.	$4^{\circ} 18'$	$+0^{\circ} 32'$	$4^{\circ} 50'$	At sea.
$-17^{\circ} 47'$	$323^{\circ} 24'$	Jan. 1837.	Du Petit-Thouars.	$7^{\circ} 20'$	$+0^{\circ} 29'$	$7^{\circ} 49'$	At sea.
$-17^{\circ} 41'$	$323^{\circ} 43'$	Jan. 1847.	Stanley.	$7^{\circ} 00'$	$-1^{\circ} 06'$	$5^{\circ} 54'$	At sea†.
$-19^{\circ} 58'$	$323^{\circ} 49'$	Oct. 1842.	Bérard.	$3^{\circ} 45'$	$-0^{\circ} 27'$	$3^{\circ} 18'$	At sea.
$-18^{\circ} 10'$	$324^{\circ} 04'$	1832.	FitzRoy.	$3^{\circ} 01'$	$+1^{\circ} 11'$	$4^{\circ} 12'$	At sea.
$-18^{\circ} 48'$	$324^{\circ} 17'$	Mar. 1836.	Vaillant.	$3^{\circ} 41'$	$+0^{\circ} 35'$	$4^{\circ} 16'$	At sea.
$-11^{\circ} 54'$	$324^{\circ} 22'$	Oct. 1842.	Bérard.	$8^{\circ} 20'$	$-0^{\circ} 27'$	$7^{\circ} 53'$	At sea.
$-18^{\circ} 57'$	$324^{\circ} 24'$	July 1830.	Erman.	$4^{\circ} 21'$	$+1^{\circ} 35'$	$5^{\circ} 56'$	At sea.
$-15^{\circ} 10'$	$324^{\circ} 45'$	Jan. 1837.	Du Petit-Thouars.	$7^{\circ} 35'$	$+0^{\circ} 28'$	$8^{\circ} 03'$	At sea.
$-19^{\circ} 45'$	$324^{\circ} 50'$	July 1830.	Erman.	$3^{\circ} 25'$	$+1^{\circ} 35'$	$5^{\circ} 00'$	At sea.
$-19^{\circ} 35'$	$324^{\circ} 59'$	July 1830.	Erman.	$4^{\circ} 06'$	$+1^{\circ} 35'$	$5^{\circ} 41'$	At sea.
$-11^{\circ} 46'$	$325^{\circ} 25'$	Oct. 1842.	Bérard.	$8^{\circ} 40'$	$-0^{\circ} 26'$	$8^{\circ} 14'$	At sea.
$-14^{\circ} 52'$	$325^{\circ} 26'$	Jan. 1847.	Stanley.	$8^{\circ} 13'$	$-1^{\circ} 06'$	$7^{\circ} 07'$	At sea†.
$-17^{\circ} 49'$	$325^{\circ} 36'$	July 1830.	Erman.	$4^{\circ} 41'$	$+1^{\circ} 35'$	$6^{\circ} 16'$	At sea.
$-16^{\circ} 48'$	$325^{\circ} 42'$	Mar. 1836.	Vaillant.	$4^{\circ} 56'$	$+0^{\circ} 35'$	$5^{\circ} 31'$	At sea.
$-11^{\circ} 55'$	$325^{\circ} 50'$	Jan. 1837.	Du Petit-Thouars.	$8^{\circ} 12'$	$+0^{\circ} 28'$	$8^{\circ} 40'$	At sea.
$-16^{\circ} 45'$	$326^{\circ} 02'$	July 1830.	Erman.	$5^{\circ} 15'$	$+1^{\circ} 35'$	$6^{\circ} 54'$	At sea.
$-14^{\circ} 43'$	$326^{\circ} 49'$	July 1830.	Erman.	$6^{\circ} 29'$	$+1^{\circ} 35'$	$8^{\circ} 04'$	At sea.
$-15^{\circ} 12'$	$326^{\circ} 52'$	Mar. 1836.	Vaillant.	$6^{\circ} 45'$	$+0^{\circ} 38'$	$7^{\circ} 23'$	At sea.
$-13^{\circ} 01'$	$327^{\circ} 25'$	July 1830.	Erman.	$7^{\circ} 00'$	$+1^{\circ} 35'$	$8^{\circ} 35'$	At sea.
$-11^{\circ} 21'$	$327^{\circ} 45'$	July 1830.	Erman.	$7^{\circ} 18'$	$+1^{\circ} 35'$	$8^{\circ} 53'$	At sea.
$-10^{\circ} 49'$	$327^{\circ} 46'$	Oct. 1842.	Bérard.	$10^{\circ} 45'$	$-0^{\circ} 27'$	$10^{\circ} 18'$	At sea.
$-12^{\circ} 48'$	$327^{\circ} 58'$	Jan. 1847.	Stanley.	$9^{\circ} 01'$	$-1^{\circ} 10'$	$7^{\circ} 51'$	At sea†.
$-13^{\circ} 15'$	$328^{\circ} 35'$	Mar. 1836.	Vaillant.	$8^{\circ} 06'$	$+0^{\circ} 38'$	$8^{\circ} 44'$	At sea.
$-12^{\circ} 28'$	$329^{\circ} 00'$	Dec. 1839.	Ross.	$8^{\circ} 25'$	$0^{\circ} 00'$	$8^{\circ} 25'$	At sea†.
$-18^{\circ} 11'$	$329^{\circ} 06'$	May 1846.	Sullivan.	$9^{\circ} 11'$	$-1^{\circ} 08'$	$8^{\circ} 03'$	At sea†.
$-12^{\circ} 29'$	$329^{\circ} 08'$	May 1846.	Sullivan.	$9^{\circ} 13'$	$-1^{\circ} 08'$	$8^{\circ} 05'$	At sea†.
$-15^{\circ} 35'$	$329^{\circ} 16'$	May 1846.	Sullivan.	$8^{\circ} 31'$	$-1^{\circ} 08'$	$7^{\circ} 23'$	At sea†.
$-17^{\circ} 20'$	$329^{\circ} 16'$	May 1846.	Sullivan.	$9^{\circ} 01'$	$-1^{\circ} 08'$	$7^{\circ} 53'$	At sea†.
$-14^{\circ} 17'$	$329^{\circ} 19'$	May 1846.	Sullivan.	$9^{\circ} 00'$	$-1^{\circ} 08'$	$7^{\circ} 52'$	At sea†.
$-10^{\circ} 15'$	$329^{\circ} 25'$	Jan. 1847.	Stanley.	$12^{\circ} 28'$	$-1^{\circ} 12'$	$11^{\circ} 16'$	At sea†.
$-14^{\circ} 55'$	$329^{\circ} 53'$	Dec. 1839.	Ross.	$8^{\circ} 33'$	$0^{\circ} 00'$	$8^{\circ} 33'$	At sea†.
$-19^{\circ} 02'$	$329^{\circ} 58'$	May 1846.	Sullivan.	$8^{\circ} 58'$	$-1^{\circ} 08'$	$7^{\circ} 50'$	At sea†.
$-11^{\circ} 46'$	$330^{\circ} 28'$	Mar. 1836.	Vaillant.	$8^{\circ} 00'$	$+0^{\circ} 40'$	$8^{\circ} 40'$	At sea.
$-16^{\circ} 57'$	$330^{\circ} 30'$	Dec. 1839.	Ross.	$9^{\circ} 09'$	$0^{\circ} 00'$	$9^{\circ} 09'$	At sea†.
$-19^{\circ} 07'$	$330^{\circ} 42'$	Dec. 1839.	Ross.	$9^{\circ} 48'$	$0^{\circ} 00'$	$9^{\circ} 48'$	At sea†.
$-12^{\circ} 08'$	$331^{\circ} 05'$	1836.	FitzRoy.	$8^{\circ} 40'$	$+0^{\circ} 36'$	$9^{\circ} 16'$	At sea.

Table XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declina- tion.	Correc- tion for Epoch.	Corrected Declina- tion.	Remarks.
Between the latitudes of -10° and -20° (continued).							
$-10^{\circ} 05'$	$331^{\circ} 49'$	Mar. 1836.	Vaillant.	$9^{\circ} 24'$	$+0^{\circ} 40'$	$10^{\circ} 04'$	At sea.
$-11^{\circ} 25'$	$336^{\circ} 37'$	1836.	FitzRoy.	$13^{\circ} 06'$	$+0^{\circ} 36'$	$13^{\circ} 42'$	At sea.
$-10^{\circ} 06'$	$340^{\circ} 27'$	Aug. 1842.	Jehenne.	$15^{\circ} 23'$	$-0^{\circ} 28'$	$14^{\circ} 55'$	At sea.
$-10^{\circ} 07'$	$341^{\circ} 02'$	1836.	FitzRoy.	$15^{\circ} 57'$	$+0^{\circ} 38'$	$16^{\circ} 35'$	At sea.
$-11^{\circ} 10'$	$342^{\circ} 37'$	Aug. 1842.	Jehenne.	$16^{\circ} 00'$	$-0^{\circ} 28'$	$15^{\circ} 32'$	At sea.
$-11^{\circ} 59'$	$344^{\circ} 10'$	June 1846.	Bérard.	$21^{\circ} 00'$	$-1^{\circ} 10'$	$19^{\circ} 50'$	At sea.
$-12^{\circ} 09'$	$345^{\circ} 01'$	Aug. 1842.	Jehenne.	$17^{\circ} 36'$	$-0^{\circ} 28'$	$17^{\circ} 08'$	At sea.
$-19^{\circ} 20'$	$345^{\circ} 44'$	Jan. 1840.	Ross.	$18^{\circ} 44'$	$0^{\circ} 00'$	$18^{\circ} 44'$	At sea†.
$-18^{\circ} 43'$	$346^{\circ} 00'$	Jan. 1840.	Ross.	$17^{\circ} 46'$	$0^{\circ} 00'$	$17^{\circ} 46'$	At sea†.
$-17^{\circ} 37'$	$346^{\circ} 23'$	Jan. 1840.	Ross.	$19^{\circ} 26'$	$0^{\circ} 00'$	$19^{\circ} 26'$	At sea†.
$-17^{\circ} 08'$	$346^{\circ} 43'$	Jan. 1840.	Ross.	$20^{\circ} 12'$	$0^{\circ} 00'$	$20^{\circ} 12'$	At sea†.
$-13^{\circ} 07'$	$347^{\circ} 00'$	Aug. 1842.	Jehenne.	$19^{\circ} 41'$	$-0^{\circ} 26'$	$19^{\circ} 15'$	At sea.
$-16^{\circ} 41'$	$347^{\circ} 07'$	Jan. 1840.	Ross.	$19^{\circ} 32'$	$0^{\circ} 00'$	$19^{\circ} 32'$	At sea†.
$-16^{\circ} 22'$	$347^{\circ} 25'$	Jan. 1840.	Ross.	$18^{\circ} 18'$	$0^{\circ} 00'$	$18^{\circ} 18'$	At sea†.
$-10^{\circ} 34'$	$347^{\circ} 55'$	Sept. 1837.	Vaillant.	$18^{\circ} 05'$	$+0^{\circ} 24'$	$18^{\circ} 29'$	At sea.
$-15^{\circ} 22'$	$347^{\circ} 58'$	Jan. 1840.	Ross.	$20^{\circ} 52'$	$0^{\circ} 00'$	$20^{\circ} 52'$	At sea†.
$-15^{\circ} 24'$	$348^{\circ} 06'$	Jan. 1840.	Ross.	$20^{\circ} 40'$	$0^{\circ} 00'$	$20^{\circ} 40'$	At sea†.
$-15^{\circ} 31'$	$348^{\circ} 15'$	Jan. 1840.	Ross.	$20^{\circ} 16'$	$0^{\circ} 00'$	$20^{\circ} 16'$	At sea†.
$-15^{\circ} 44'$	$348^{\circ} 15'$	Jan. 1840.	Ross.	$19^{\circ} 10'$	$0^{\circ} 00'$	$19^{\circ} 10'$	At sea†.
$-15^{\circ} 37'$	$348^{\circ} 27'$	Jan. 1840.	Ross.	$19^{\circ} 11'$	$0^{\circ} 00'$	$19^{\circ} 11'$	At sea†.
$-15^{\circ} 40'$	$348^{\circ} 35'$	Jan. 1840.	Ross.	$18^{\circ} 56'$	$0^{\circ} 00'$	$18^{\circ} 56'$	At sea†.
$-11^{\circ} 22'$	$349^{\circ} 32'$	May 1839.	Du Petit-Thouars.	$20^{\circ} 14'$	$+0^{\circ} 06'$	$20^{\circ} 20'$	At sea.
$-12^{\circ} 25'$	$349^{\circ} 43'$	Sept. 1837.	Vaillant.	$18^{\circ} 40'$	$+0^{\circ} 23'$	$19^{\circ} 03'$	At sea.
$-14^{\circ} 22'$	$349^{\circ} 54'$	Jan. 1840.	Ross.	$19^{\circ} 31'$	$0^{\circ} 00'$	$19^{\circ} 31'$	At sea†.
$-14^{\circ} 11'$	$350^{\circ} 28'$	Jan. 1840.	Ross.	$21^{\circ} 24'$	$0^{\circ} 00'$	$21^{\circ} 24'$	At sea†.
$-14^{\circ} 38'$	$350^{\circ} 30'$	Jan. 1840.	Ross.	$21^{\circ} 33'$	$0^{\circ} 00'$	$21^{\circ} 33'$	At sea†.
$-13^{\circ} 02'$	$350^{\circ} 53'$	1836.	FitzRoy.	$19^{\circ} 56'$	$+0^{\circ} 33'$	$20^{\circ} 29'$	At sea.
$-12^{\circ} 40'$	$351^{\circ} 06'$	May 1839.	Du Petit-Thouars.	$21^{\circ} 16'$	$+0^{\circ} 06'$	$21^{\circ} 22'$	At sea.
$-14^{\circ} 08'$	$351^{\circ} 32'$	Jan. 1840.	Ross.	$21^{\circ} 32'$	$0^{\circ} 00'$	$21^{\circ} 32'$	At sea†.
$-14^{\circ} 36'$	$351^{\circ} 53'$	Jan. 1840.	Ross.	$21^{\circ} 08'$	$0^{\circ} 00'$	$21^{\circ} 08'$	At sea†.
$-15^{\circ} 04'$	$351^{\circ} 57'$	Jan. 1840.	Ross.	$21^{\circ} 10'$	$0^{\circ} 00'$	$21^{\circ} 10'$	At sea†.
$-14^{\circ} 11'$	$352^{\circ} 00'$	Jan. 1840.	Ross.	$21^{\circ} 06'$	$0^{\circ} 00'$	$21^{\circ} 06'$	At sea†.
$-13^{\circ} 34'$	$352^{\circ} 02'$	Jan. 1840.	Ross.	$22^{\circ} 09'$	$0^{\circ} 00'$	$22^{\circ} 09'$	At sea†.
$-15^{\circ} 26'$	$352^{\circ} 20'$	Jan. 1840.	Ross.	$21^{\circ} 39'$	$0^{\circ} 00'$	$21^{\circ} 39'$	At sea†.
$-15^{\circ} 27'$	$352^{\circ} 30'$	Jan. 1840.	Ross.	$21^{\circ} 27'$	$0^{\circ} 00'$	$21^{\circ} 27'$	At sea†.
$-14^{\circ} 28'$	$352^{\circ} 52'$	May 1839.	Du Petit-Thouars.	$22^{\circ} 18'$	$+0^{\circ} 05'$	$22^{\circ} 23'$	At sea.
$-18^{\circ} 29'$	$352^{\circ} 55'$	Feb. 1840.	Ross.	$23^{\circ} 11'$	$0^{\circ} 00'$	$23^{\circ} 11'$	At sea†.
$-17^{\circ} 38'$	$353^{\circ} 19'$	Feb. 1840.	Ross.	$21^{\circ} 37'$	$0^{\circ} 00'$	$21^{\circ} 37'$	At sea†.
$-15^{\circ} 15'$	$353^{\circ} 21'$	Jan. 1840.	Ross.	$21^{\circ} 29'$	$0^{\circ} 00'$	$21^{\circ} 29'$	At sea†.
$-17^{\circ} 10'$	$353^{\circ} 33'$	Feb. 1840.	Ross.	$20^{\circ} 54'$	$0^{\circ} 00'$	$20^{\circ} 54'$	At sea†.
$-15^{\circ} 21'$	$354^{\circ} 07'$	Jan. 1840.	Ross.	$23^{\circ} 27'$	$0^{\circ} 00'$	$23^{\circ} 27'$	At sea†.
$-15^{\circ} 55'$	$354^{\circ} 17'$	Feb. 1840.	Ross.	$22^{\circ} 53'$	$0^{\circ} 00'$	$22^{\circ} 53'$	Anchorage at St. Helena.
$-15^{\circ} 55'$	$354^{\circ} 17'$	June 1846.	Bérard.	$23^{\circ} 11'$	$-0^{\circ} 58'$	$22^{\circ} 13'$	Anchorage at St. Helena.
$-15^{\circ} 55'$	$354^{\circ} 17'$	May 1839.	Du Petit-Thouars.	$22^{\circ} 17'$	$+0^{\circ} 06'$	$22^{\circ} 23'$	Anchorage at St. Helena.
$-15^{\circ} 57'$	$354^{\circ} 19'$	Jan. 1841.	Magnetical Observ.	$22^{\circ} 51'$	$-0^{\circ} 09'$	$22^{\circ} 42'$	St. Helena.
$-15^{\circ} 57'$	$354^{\circ} 26'$	1836.	FitzRoy.	$19^{\circ} 43'$	$+0^{\circ} 33'$	$20^{\circ} 16'$	At sea.
$-16^{\circ} 27'$	$355^{\circ} 24'$	Aug. 1842.	Jehenne.	$24^{\circ} 03'$	$-0^{\circ} 25'$	$23^{\circ} 38'$	At sea.
$-19^{\circ} 27'$	$355^{\circ} 32'$	June 1846.	Bérard.	$23^{\circ} 20'$	$-1^{\circ} 01'$	$22^{\circ} 19'$	At sea.
$-16^{\circ} 13'$	$355^{\circ} 34'$	June 1846.	Bérard.	$23^{\circ} 11'$	$-1^{\circ} 01'$	$22^{\circ} 10'$	At sea.
$-18^{\circ} 59'$	$356^{\circ} 05'$	June 1846.	Bérard.	$23^{\circ} 20'$	$-1^{\circ} 01'$	$22^{\circ} 19'$	At sea.
$-17^{\circ} 04'$	$356^{\circ} 33'$	Sept. 1837.	Vaillant.	$22^{\circ} 28'$	$+0^{\circ} 22'$	$22^{\circ} 50'$	At sea.
$-17^{\circ} 13'$	$356^{\circ} 45'$	June 1846.	Bérard.	$23^{\circ} 21'$	$-1^{\circ} 01'$	$22^{\circ} 20'$	At sea.
$-18^{\circ} 12'$	$356^{\circ} 55'$	June 1846.	Bérard.	$24^{\circ} 59'$	$-1^{\circ} 01'$	$23^{\circ} 58'$	At sea.
$-18^{\circ} 52'$	$357^{\circ} 15'$	Aug. 1842.	Jehenne.	$25^{\circ} 15'$	$-0^{\circ} 25'$	$25^{\circ} 20'$	At sea.
$-29^{\circ} 00'$	$300^{\circ} 56'$	Jan. 1846.	Sullivan.	$-10^{\circ} 40'$	$-0^{\circ} 24'$	$-11^{\circ} 04'$	Rio Parana.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declina- tion.	Correc- tion for Epoch.	Corrected Declina- tion.	Remarks.
Between the latitudes of -20° and -30° .							
$-27^{\circ} 27'$	$301^{\circ} 16'$	Jan. 1846.	Sullivan.	$-9^{\circ} 24'$	$-0^{\circ} 24'$	$-9^{\circ} 48'$	Corrientes Fort.
$-27^{\circ} 26'$	$311^{\circ} 25'$	June 1832.	FitzRoy.	$-6^{\circ} 30'$	$+1^{\circ} 00'$	$-5^{\circ} 30'$	St. Catherine.
$-29^{\circ} 53'$	$311^{\circ} 48'$	June 1832.	FitzRoy.	$-6^{\circ} 27'$	$+1^{\circ} 00'$	$-5^{\circ} 27'$	At sea.
$-27^{\circ} 56'$	$312^{\circ} 42'$	Feb. 1837.	Du Petit-Thouars.	$-4^{\circ} 30'$	$+0^{\circ} 23'$	$-4^{\circ} 07'$	At sea.
$-28^{\circ} 41'$	$313^{\circ} 39'$	April 1836.	Vaillant.	$-4^{\circ} 12'$	$+0^{\circ} 30'$	$-3^{\circ} 42'$	At sea.
$-27^{\circ} 16'$	$313^{\circ} 44'$	June 1832.	FitzRoy.	$-5^{\circ} 10'$	$+1^{\circ} 00'$	$-4^{\circ} 10'$	At sea.
$-27^{\circ} 14'$	$314^{\circ} 10'$	June 1832.	FitzRoy.	$-4^{\circ} 34'$	$+1^{\circ} 00'$	$-3^{\circ} 34'$	At sea.
$-26^{\circ} 09'$	$314^{\circ} 18'$	Feb. 1837.	Du Petit-Thouars.	$-2^{\circ} 44'$	$+0^{\circ} 23'$	$-2^{\circ} 21'$	At sea.
$-28^{\circ} 15'$	$314^{\circ} 53'$	May 1830.	Erman.	$-4^{\circ} 10'$	$+1^{\circ} 16'$	$-2^{\circ} 54'$	At sea.
$-26^{\circ} 18'$	$315^{\circ} 28'$	May 1830.	Erman.	$-3^{\circ} 31'$	$+1^{\circ} 16'$	$-2^{\circ} 15'$	At sea.
$-26^{\circ} 49'$	$315^{\circ} 55'$	April 1836.	Vaillant.	$-3^{\circ} 06'$	$+0^{\circ} 30'$	$-2^{\circ} 36'$	At sea.
$-26^{\circ} 33'$	$316^{\circ} 12'$	June 1832.	FitzRoy.	$-3^{\circ} 39'$	$+1^{\circ} 03'$	$-2^{\circ} 36'$	At sea.
$-24^{\circ} 12'$	$316^{\circ} 23'$	Feb. 1837.	Du Petit-Thouars.	$-2^{\circ} 04'$	$+0^{\circ} 23'$	$-1^{\circ} 41'$	At sea.
$-24^{\circ} 12'$	$316^{\circ} 36'$	May 1830.	Erman.	$-2^{\circ} 10'$	$+1^{\circ} 20'$	$-0^{\circ} 50'$	At sea.
$-23^{\circ} 30'$	$316^{\circ} 40'$	Feb. 1837.	Du Petit-Thouars.	$-2^{\circ} 00'$	$+0^{\circ} 23'$	$-1^{\circ} 37'$	At sea.
$-24^{\circ} 43'$	$316^{\circ} 47'$	May 1830.	Erman.	$-2^{\circ} 41'$	$+1^{\circ} 20'$	$-1^{\circ} 21'$	At sea.
$-23^{\circ} 46'$	$316^{\circ} 49'$	May 1832.	Erman.	$-1^{\circ} 30'$	$+1^{\circ} 20'$	$-0^{\circ} 10'$	At sea.
$-23^{\circ} 03'$	$316^{\circ} 54'$	June 1832.	FitzRoy.	$-1^{\circ} 39'$	$+1^{\circ} 03'$	$-0^{\circ} 36'$	At sea.
$-22^{\circ} 55'$	$316^{\circ} 55'$	June 1832.	FitzRoy.	$-2^{\circ} 00'$	$+1^{\circ} 03'$	$-0^{\circ} 57'$	Rio de Janeiro.
$-22^{\circ} 54'$	$316^{\circ} 55'$	June 1830.	Erman.	$-2^{\circ} 08'$	$+1^{\circ} 20'$	$-0^{\circ} 48'$	Rio de Janeiro.
$-22^{\circ} 54'$	$316^{\circ} 55'$	April 1836.	Vaillant.	$-0^{\circ} 50'$	$+0^{\circ} 31'$	$-0^{\circ} 19'$	Rio de Janeiro.
$-22^{\circ} 54'$	$316^{\circ} 55'$	Feb. 1837.	Du Petit-Thouars.	$-0^{\circ} 51'$	$+0^{\circ} 23'$	$-0^{\circ} 28'$	Rio de Janeiro.
$-22^{\circ} 54'$	$316^{\circ} 55'$	July 1845.	Von Helmrieher.	$-0^{\circ} 13'$	$-0^{\circ} 47'$	$-1^{\circ} 00'$	Rio de Janeiro.
$-24^{\circ} 06'$	$317^{\circ} 07'$	June 1832.	FitzRoy.	$-1^{\circ} 57'$	$+1^{\circ} 03'$	$-0^{\circ} 54'$	At sea.
$-24^{\circ} 00'$	$317^{\circ} 09'$	Feb. 1847.	Stanley.	$-0^{\circ} 47'$	$-1^{\circ} 00'$	$-1^{\circ} 47'$	At sea†.
$-23^{\circ} 09'$	$317^{\circ} 17'$	June 1830.	Erman.	$-1^{\circ} 39'$	$+1^{\circ} 20'$	$-0^{\circ} 19'$	At sea.
$-24^{\circ} 38'$	$317^{\circ} 19'$	Jan. 1844.	Pasley.	$-1^{\circ} 00'$	$-0^{\circ} 34'$	$-1^{\circ} 34'$	At sea.
$-25^{\circ} 23'$	$317^{\circ} 37'$	April 1836.	Vaillant.	$-1^{\circ} 09'$	$+0^{\circ} 32'$	$-0^{\circ} 37'$	At sea.
$-23^{\circ} 00'$	$318^{\circ} 03'$	July 1828.	Foster.	$-1^{\circ} 07'$	$+1^{\circ} 40'$	$+0^{\circ} 33'$	Cape Frio.
$-24^{\circ} 07'$	$318^{\circ} 07'$	April 1836.	Vaillant.	$-0^{\circ} 30'$	$+0^{\circ} 32'$	$+0^{\circ} 02'$	At sea.
$-23^{\circ} 05'$	$318^{\circ} 10'$	April 1836.	Vaillant.	$-2^{\circ} 30'$	$+0^{\circ} 32'$	$-1^{\circ} 58'$	At sea.
$-29^{\circ} 17'$	$318^{\circ} 13'$	Dec. 1843.	Pasley.	$0^{\circ} 00'$	$-0^{\circ} 34'$	$-0^{\circ} 34'$	At sea.
$-23^{\circ} 30'$	$318^{\circ} 13'$	June 1830.	Erman.	$-1^{\circ} 03'$	$+1^{\circ} 20'$	$+0^{\circ} 17'$	At sea.
$-27^{\circ} 11'$	$318^{\circ} 38'$	Jan. 1844.	Pasley.	$0^{\circ} 00'$	$-0^{\circ} 34'$	$-0^{\circ} 34'$	At sea.
$-24^{\circ} 56'$	$318^{\circ} 38'$	April 1836.	Vaillant.	$-0^{\circ} 23'$	$+0^{\circ} 34'$	$+0^{\circ} 11'$	At sea.
$-22^{\circ} 58'$	$318^{\circ} 45'$	June 1832.	FitzRoy.	$-0^{\circ} 24'$	$+1^{\circ} 07'$	$0^{\circ} 43'$	At sea.
$-22^{\circ} 53'$	$319^{\circ} 18'$	Feb. 1837.	Du Petit-Thouars.	$+2^{\circ} 12'$	$+0^{\circ} 26'$	$2^{\circ} 38'$	At sea.
$-25^{\circ} 59'$	$319^{\circ} 19'$	Feb. 1847.	Stanley.	$1^{\circ} 33'$	$-1^{\circ} 04'$	$0^{\circ} 29'$	At sea†.
$-22^{\circ} 42'$	$319^{\circ} 39'$	June 1832.	FitzRoy.	$0^{\circ} 03'$	$+1^{\circ} 10'$	$1^{\circ} 13'$	At sea.
$-24^{\circ} 48'$	$320^{\circ} 23'$	June 1830.	Erman.	$1^{\circ} 03'$	$+1^{\circ} 30'$	$2^{\circ} 33'$	At sea.
$-20^{\circ} 50'$	$320^{\circ} 32'$	Dec. 1843.	Pasley.	$3^{\circ} 00'$	$-0^{\circ} 38'$	$2^{\circ} 22'$	At sea.
$-22^{\circ} 07'$	$320^{\circ} 39'$	Jan. 1847.	Stanley.	$3^{\circ} 01'$	$-1^{\circ} 06'$	$1^{\circ} 55'$	At sea†.
$-20^{\circ} 12'$	$322^{\circ} 06'$	Jan. 1847.	Stanley.	$5^{\circ} 05'$	$-1^{\circ} 06'$	$3^{\circ} 59'$	At sea†.
$-27^{\circ} 52'$	$322^{\circ} 42'$	Jan. 1847.	Stanley.	$2^{\circ} 20'$	$-1^{\circ} 06'$	$1^{\circ} 14'$	At sea†.
$-24^{\circ} 52'$	$323^{\circ} 43'$	June 1830.	Erman.	$2^{\circ} 20'$	$+1^{\circ} 30'$	$3^{\circ} 50'$	At sea.
$-20^{\circ} 38'$	$324^{\circ} 44'$	June 1830.	Erman.	$3^{\circ} 32'$	$+1^{\circ} 30'$	$5^{\circ} 02'$	At sea.
$-22^{\circ} 28'$	$324^{\circ} 46'$	June 1830.	Erman.	$3^{\circ} 33'$	$+1^{\circ} 30'$	$5^{\circ} 03'$	At sea.
$-22^{\circ} 39'$	$324^{\circ} 59'$	Oct. 1842.	Bérard.	$3^{\circ} 30'$	$-0^{\circ} 26'$	$3^{\circ} 04'$	At sea.
$-24^{\circ} 03'$	$325^{\circ} 08'$	June 1830.	Erman.	$3^{\circ} 12'$	$+1^{\circ} 35'$	$4^{\circ} 47'$	At sea.
$-25^{\circ} 00'$	$325^{\circ} 16'$	June 1830.	Erman.	$2^{\circ} 45'$	$+1^{\circ} 35'$	$4^{\circ} 20'$	At sea.
$-25^{\circ} 09'$	$327^{\circ} 42'$	Oct. 1842.	Bérard.	$5^{\circ} 00'$	$-0^{\circ} 26'$	$4^{\circ} 34'$	At sea.
$-26^{\circ} 58'$	$329^{\circ} 17'$	Oct. 1842.	Bérard.	$4^{\circ} 15'$	$-0^{\circ} 27'$	$3^{\circ} 48'$	At sea.
$-20^{\circ} 30'$	$330^{\circ} 37'$	Dec. 1839.	Ross.	$8^{\circ} 01'$	$0^{\circ} 00'$	$8^{\circ} 01'$	At sea†.
$-21^{\circ} 30'$	$330^{\circ} 46'$	Dec. 1839.	Ross.	$9^{\circ} 43'$	$0^{\circ} 00'$	$9^{\circ} 43'$	At sea†.
$-22^{\circ} 40'$	$330^{\circ} 52'$	Dec. 1839.	Ross.	$9^{\circ} 01'$	$0^{\circ} 00'$	$9^{\circ} 01'$	At sea†.
$-23^{\circ} 19'$	$330^{\circ} 56'$	Dec. 1839.	Ross.	$7^{\circ} 45'$	$0^{\circ} 00'$	$7^{\circ} 45'$	At sea†.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correction for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of -20° and -30° (continued).							
$-27^{\circ} 42'$	$331^{\circ} 10'$	Nov. 1842.	Bérard.	$6^{\circ} 15'$	$-0^{\circ} 27'$	$5^{\circ} 48'$	At sea.
$-24 42$	$332 05$	Dec. 1839.	Ross.	$7 08$	$0 00$	$7 08$	At sea†.
$-26 58$	$333 24$	Dec. 1839.	Ross.	$9 24$	$0 00$	$9 24$	At sea†.
$-26 37$	$333 26$	Dec. 1839.	Ross.	$8 02$	$0 00$	$8 02$	At sea†.
$-27 04$	$334 14$	Dec. 1839.	Ross.	$10 04$	$0 00$	$10 04$	At sea†.
$-27 40$	$335 06$	Dec. 1839.	Ross.	$9 37$	$0 00$	$9 37$	At sea†.
$-25 30$	$335 20$	Dec. 1839.	Ross.	$10 35$	$0 00$	$10 35$	At sea†.
$-26 55$	$335 21$	Dec. 1839.	Ross.	$9 48$	$0 00$	$9 48$	At sea†.
$-25 45$	$335 43$	Dec. 1839.	Ross.	$10 22$	$0 00$	$10 22$	At sea†.
$-26 51$	$337 11$	Dec. 1839.	Ross.	$11 10$	$0 00$	$11 10$	At sea†.
$-27 44$	$338 36$	Dec. 1839.	Ross.	$12 00$	$0 00$	$12 00$	At sea†.
$-28 15$	$340 08$	Jan. 1840.	Ross.	$13 23$	$0 00$	$13 23$	At sea†.
$-27 55$	$341 50$	Jan. 1840.	Ross.	$13 13$	$0 00$	$13 13$	At sea†.
$-27 33$	$342 27$	Jan. 1840.	Ross.	$13 41$	$0 00$	$13 41$	At sea†.
$-25 48$	$342 55$	Jan. 1840.	Ross.	$14 11$	$0 00$	$14 11$	At sea†.
$-24 39$	$343 02$	Jan. 1840.	Ross.	$14 26$	$0 00$	$14 26$	At sea†.
$-22 54$	$343 36$	Jan. 1840.	Ross.	$14 59$	$0 00$	$14 59$	At sea†.
$-20 20$	$345 07$	Jan. 1840.	Ross.	$17 50$	$0 00$	$17 50$	At sea†.
$-29 56$	$345 54$	June 1846.	Bérard.	$17 48$	$-1 14$	$16 34$	At sea.
$-27 00$	$346 33$	Jan. 1840.	Ross.	$17 53$	$0 00$	$17 53$	At sea†.
$-27 53$	$346 43$	Jan. 1840.	Ross.	$18 30$	$0 00$	$18 30$	At sea†.
$-26 10$	$347 18$	Jan. 1840.	Ross.	$17 51$	$0 00$	$17 51$	At sea†.
$-25 23$	$347 49$	Jan. 1840.	Ross.	$19 55$	$0 00$	$19 55$	At sea†.
$-28 48$	$348 14$	Jan. 1840.	Ross.	$18 19$	$0 00$	$18 19$	At sea†.
$-24 41$	$348 39$	Jan. 1840.	Ross.	$20 21$	$0 00$	$20 21$	At sea†.
$-28 05$	$349 16$	June 1846.	Bérard.	$19 56$	$-1 14$	$18 42$	At sea.
$-29 58$	$350 52$	Jan. 1840.	Ross.	$19 55$	$0 00$	$19 55$	At sea†.
$-23 32$	$351 04$	Feb. 1840.	Ross.	$21 39$	$0 00$	$21 39$	At sea†.
$-22 00$	$351 19$	Feb. 1840.	Ross.	$22 17$	$0 00$	$22 17$	At sea†.
$-20 15$	$352 04$	Feb. 1840.	Ross.	$23 12$	$0 00$	$23 12$	At sea†.
$-20 51$	$2 38$	May 1839.	Du Petit-Thouars.	$25 27$	$+0 05$	$25 32$	At sea.
$-22 17$	$4 36$	June 1836.	FitzRoy.	$24 12$	$+0 24$	$24 36$	At sea.
$-22 56$	$5 06$	June 1836.	FitzRoy.	$24 09$	$+0 24$	$24 33$	At sea.
$-25 54$	$7 28$	April 1839.	Du Petit-Thouars.	$26 28$	$+0 05$	$26 33$	At sea.
$-26 35$	$7 33$	April 1839.	Du Petit-Thouars.	$26 28$	$+0 05$	$26 33$	At sea.
$-27 35$	$8 05$	Aug. 1842.	Jehenne.	$28 00$	$-0 18$	$27 42$	At sea.
$-27 23$	$8 32$	April 1839.	Du Petit-Thouars.	$27 08$	$+0 05$	$27 13$	At sea.
$-27 48$	$9 50$	Aug. 1837.	Vaillant.	$26 06$	$+0 18$	$26 24$	At sea.
$-24 31$	$10 35$	Aug. 1837.	Vaillant.	$25 11$	$+0 18$	$25 29$	At sea.
$-29 33$	$10 58$	April 1839.	Du Petit-Thouars.	$26 51$	$+0 05$	$26 56$	At sea.
$-29 05$	$12 01$	Aug. 1837.	Vaillant.	$26 02$	$+0 18$	$26 20$	At sea.
Between the latitudes of -30° and -40° .							
$-38 44$	$297 45$	1833.	FitzRoy.	$-15 20$	$+0 16$	$-15 04$	Argentino Fort.
$-39 58$	$297 53$	1833.	FitzRoy.	$-15 50$	$+0 16$	$-15 34$	Indian Head.
$-39 52$	$297 54$	1833.	FitzRoy.	$-15 40$	$+0 16$	$-15 24$	Colorado River.
$-39 27$	$297 57$	1833.	FitzRoy.	$-15 30$	$+0 16$	$-15 14$	Labyrinth Head.
$-39 16$	$298 00$	1833.	FitzRoy.	$-15 20$	$+0 16$	$-15 04$	Ariadne Island.
$-38 57$	$298 01$	1833.	FitzRoy.	$-15 00$	$+0 19$	$-14 41$	Point Johnson.
$-39 11$	$298 06$	1833.	FitzRoy.	$-15 10$	$+0 19$	$-14 51$	Zuraita Island.
$-38 59$	$298 20$	1833.	FitzRoy.	$-14 50$	$+0 19$	$-14 31$	Mount Hermoso.
$-38 57$	$298 42$	Aug. 1833.	FitzRoy.	$-15 10$	$+0 20$	$-14 50$	At sea.
$-39 10$	$299 19$	Aug. 1833.	FitzRoy.	$-15 07$	$+0 26$	$-14 41$	At sea.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correc- tion for Epoch.	Corrected Declina- tion.	Remarks.
Between the latitudes of -30° and -40° (continued).							
$-31^{\circ} 41'$	$299^{\circ} 34'$	Jan. 1846.	Sullivan.	$-13^{\circ} 14'$	$-0^{\circ} 24'$	$-13^{\circ} 38'$	Bahada de Santa Fe.
$-38 39$	$301 12$	1833.	FitzRoy.	$-14 00$	$+0 26$	$-13 34$	Black Point.
$-34 36$	$301 38$	1833.	FitzRoy.	$-11 40$	$+0 26$	$-11 14$	Buenos Ayres.
$-33 41$	$301 53$	Sept. 1845.	Sullivan.	$-12 06$	$-0 23$	$-12 29$	River Uruquay.
$-32 20$	$301 55$	Sept. 1845.	Sullivan.	$-11 14$	$-0 23$	$-11 37$	Sandy Island.
$-34 28$	$302 11$	Aug. 1844.	Sullivan.	$-11 36$	$-0 18$	$-11 54$	Colonia.
$-38 17$	$302 21$	1833.	FitzRoy.	$-14 00$	$+0 28$	$-13 32$	Point San Andres.
$-34 42$	$302 28$	Nov. 1832.	FitzRoy.	$-11 33$	$+0 32$	$-11 01$	At sea.
$-38 06$	$302 31$	1833.	FitzRoy.	$-13 50$	$+0 29$	$-13 21$	Cape Corientes.
$-35 43$	$302 41$	1833.	FitzRoy.	$-12 30$	$+0 29$	$-12 01$	Rio Salado.
$-35 42$	$302 42$	1833.	FitzRoy.	$-12 30$	$+0 29$	$-12 01$	River Sanborombon.
$-35 27$	$302 55$	1833.	FitzRoy.	$-12 30$	$+0 29$	$-12 01$	Point Piedras.
$-34 41$	$303 12$	Aug. 1832.	FitzRoy.	$-11 49$	$+0 34$	$-11 15$	At sea.
$-36 19$	$303 14$	1833.	FitzRoy.	$-13 00$	$+0 29$	$-12 31$	Cape San Antonio.
$-39 59$	$303 19$	1833.	FitzRoy.	$-13 30$	$+0 29$	$-13 01$	Medanos Point.
$-36 56$	$303 25$	Aug. 1832.	FitzRoy.	$-12 36$	$+0 34$	$-12 02$	At sea.
$-34 52$	$303 36$	Aug. 1833.	FitzRoy.	$-11 46$	$+0 29$	$-12 15$	At sea.
$-34 57$	$303 42$	Nov. 1832.	FitzRoy.	$-12 28$	$+0 34$	$-11 54$	At sea.
$-34 53$	$303 47$	1833.	FitzRoy.	$-12 40$	$+0 29$	$-12 11$	Monte Video.
$-34 53$	$303 47$	April 1836.	Vaillant.	$-10 35$	$+0 17$	$-10 18$	Monte Video.
$-34 54$	$303 48$	July 1843.	Sullivan.	$-10 42$	$-0 16$	$-10 58$	Monte Video.
$-34 54$	$303 48$	Aug. 1844.	Sullivan.	$-10 53$	$-0 20$	$-11 13$	Monte Video.
$-34 57$	$305 02$	1833.	FitzRoy.	$-12 28$	$+0 32$	$-11 56$	Gorriti.
$-35 14$	$305 14$	April 1836.	Vaillant.	$-10 57$	$+0 20$	$-10 37$	At sea.
$-38 37$	$305 46$	Feb. 1837.	Du Petit-Thouars.	$-10 34$	$+0 16$	$-10 18$	At sea.
$-35 52$	$306 16$	April 1836.	Vaillant.	$-8 40$	$+0 20$	$-8 20$	At sea.
$-34 05$	$306 49$	April 1836.	Vaillant.	$-8 25$	$+0 20$	$-8 05$	At sea.
$-35 01$	$306 52$	April 1836.	Vaillant.	$-10 14$	$+0 20$	$-9 54$	At sea.
$-34 57$	$307 31$	April 1836.	Vaillant.	$-9 10$	$+0 20$	$-8 50$	At sea.
$-34 09$	$307 57$	July 1832.	FitzRoy.	$-10 27$	$+0 45$	$-9 42$	At sea.
$-34 16$	$308 20$	Feb. 1837.	Du Petit-Thouars.	$-7 28$	$+0 17$	$-7 11$	At sea.
$-39 49$	$308 53$	April 1830.	Erman.	$-11 44$	$+0 57$	$-10 47$	At sea.
$-33 16$	$309 27$	April 1836.	Vaillant.	$-8 18$	$+0 22$	$-7 56$	At sea.
$-38 29$	$309 31$	April 1830.	Erman.	$-11 16$	$+0 57$	$-10 19$	At sea.
$-33 42$	$309 40$	April 1836.	Vaillant.	$-6 56$	$+0 22$	$-6 34$	At sea.
$-32 37$	$309 43$	Aug. 1837.	Du Petit-Thouars.	$-5 37$	$+0 17$	$-5 20$	At sea.
$-38 13$	$309 45$	April 1830.	Erman.	$-10 10$	$+1 06$	$-9 04$	At sea.
$-37 15$	$310 00$	April 1830.	Erman.	$-9 25$	$+1 06$	$-8 19$	At sea.
$-35 47$	$310 33$	April 1830.	Erman.	$-8 19$	$+1 06$	$-7 13$	At sea.
$-34 49$	$310 55$	April 1830.	Erman.	$-8 08$	$+1 06$	$-7 02$	At sea.
$-31 09$	$311 03$	July 1832.	FitzRoy.	$-7 50$	$+0 53$	$-6 57$	At sea.
$-30 56$	$311 44$	April 1836.	Vaillant.	$-4 44$	$+0 26$	$-4 18$	At sea.
$-32 38$	$312 27$	1830.	Erman.	$-7 17$	$+1 10$	$-6 07$	At sea.
$-30 51$	$313 22$	May 1830.	Erman.	$-5 13$	$+1 10$	$-4 03$	At sea.
$-30 23$	$316 15$	April 1846.	Sullivan.	$-4 15$	$-1 00$	$-5 15$	At sea†.
$-30 12$	$318 18$	Dec. 1843.	Pasley.	$0 00$	$-0 35$	$-0 35$	At sea.
$-31 55$	$318 30$	Jan. 1844.	Pasley.	$0 00$	$-0 35$	$-0 35$	At sea.
$-30 06$	$318 45$	April 1846.	Sullivan.	$-2 10$	$-1 00$	$-3 10$	At sea†.
$-31 26$	$320 34$	Jan. 1844.	Pasley.	$+1 20$	$-0 36$	$+0 44$	At sea.
$-30 22$	$321 00$	Jan. 1844.	Pasley.	$+1 00$	$-0 36$	$0 24$	At sea.
$-31 20$	$322 06$	Jan. 1844.	Pasley.	$+1 17$	$-0 36$	$0 43$	At sea.
$-33 13$	$323 09$	Feb. 1847.	Stanley.	$+2 48$	$-1 12$	$1 36$	At sea†.
$-30 50$	$323 14$	Feb. 1847.	Stanley.	$+2 24$	$-1 12$	$1 12$	At sea†.
$-35 07$	$324 14$	Feb. 1847.	Stanley.	$+2 49$	$-1 19$	$1 30$	At sea†.
$-36 37$	$326 57$	Feb. 1847.	Stanley.	$+2 37$	$-1 24$	$1 13$	At sea†.
$-37 24$	$328 42$	Feb. 1847.	Stanley.	$+4 09$	$-1 25$	$2 44$	At sea†.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correction for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of -30° and -40° (continued).							
$-36^{\circ} 50'$	$332^{\circ} 01'$	Feb. 1847.	Stanley.	$6^{\circ} 32'$	$-1^{\circ} 26'$	$5^{\circ} 06'$	At sea†.
$-36^{\circ} 32'$	$333^{\circ} 25'$	Feb. 1847.	Stanley.	$7^{\circ} 51'$	$-1^{\circ} 26'$	$6^{\circ} 25'$	At sea†.
$-31^{\circ} 01'$	$335^{\circ} 28'$	Nov. 1842.	Bérard.	$11^{\circ} 30'$	$-0^{\circ} 32'$	$10^{\circ} 58'$	At sea.
$-36^{\circ} 42'$	$336^{\circ} 14'$	May 1846.	Bérard.	$7^{\circ} 54'$	$-1^{\circ} 14'$	$6^{\circ} 40'$	At sea.
$-36^{\circ} 31'$	$336^{\circ} 28'$	Feb. 1847.	Stanley.	$10^{\circ} 00'$	$-1^{\circ} 26'$	$8^{\circ} 34'$	At sea†.
$-31^{\circ} 49'$	$337^{\circ} 53'$	Nov. 1842.	Bérard.	$13^{\circ} 45'$	$-0^{\circ} 34'$	$12^{\circ} 41'$	At sea.
$-38^{\circ} 26'$	$336^{\circ} 42'$	May 1846.	Bérard.	$7^{\circ} 45'$	$-1^{\circ} 18'$	$6^{\circ} 27'$	At sea.
$-35^{\circ} 18'$	$337^{\circ} 23'$	May 1846.	Bérard.	$11^{\circ} 03'$	$-1^{\circ} 14'$	$9^{\circ} 49'$	At sea.
$-33^{\circ} 26'$	$339^{\circ} 58'$	May 1846.	Bérard.	$12^{\circ} 44'$	$-1^{\circ} 14'$	$11^{\circ} 30'$	At sea.
$-35^{\circ} 31'$	$340^{\circ} 26'$	Feb. 1847.	Stanley.	$13^{\circ} 07'$	$-1^{\circ} 26'$	$11^{\circ} 41'$	At sea†.
$-37^{\circ} 01'$	$341^{\circ} 09'$	Feb. 1847.	Stanley.	$11^{\circ} 13'$	$-1^{\circ} 26'$	$9^{\circ} 47'$	At sea†.
$-36^{\circ} 52'$	$341^{\circ} 31'$	Feb. 1847.	Stanley.	$11^{\circ} 58'$	$-1^{\circ} 26'$	$10^{\circ} 32'$	At sea†.
$-32^{\circ} 14'$	$342^{\circ} 11'$	June 1846.	Bérard.	$13^{\circ} 36'$	$-1^{\circ} 14'$	$12^{\circ} 22'$	At sea.
$-38^{\circ} 02'$	$343^{\circ} 00'$	Feb. 1847.	Stanley.	$13^{\circ} 07'$	$-1^{\circ} 22'$	$12^{\circ} 45'$	At sea†.
$-30^{\circ} 41'$	$344^{\circ} 38'$	June 1846.	Bérard.	$17^{\circ} 16'$	$-1^{\circ} 11'$	$16^{\circ} 05'$	At sea.
$-37^{\circ} 57'$	$349^{\circ} 19'$	Feb. 1847.	Stanley.	$14^{\circ} 30'$	$-1^{\circ} 20'$	$13^{\circ} 10'$	At sea†.
$-34^{\circ} 31'$	$350^{\circ} 21'$	Nov. 1842.	Bérard.	$16^{\circ} 00'$	$-0^{\circ} 32'$	$15^{\circ} 28'$	At sea.
$-37^{\circ} 27'$	$352^{\circ} 40'$	Feb. 1847.	Stanley.	$18^{\circ} 40'$	$-1^{\circ} 20'$	$17^{\circ} 20'$	At sea†.
$-30^{\circ} 58'$	$353^{\circ} 26'$	Feb. 1840.	Ross.	$21^{\circ} 48'$	$-0^{\circ} 02'$	$21^{\circ} 46'$	At sea†.
$-36^{\circ} 05'$	$355^{\circ} 10'$	Feb. 1847.	Stanley.	$20^{\circ} 02'$	$-1^{\circ} 16'$	$18^{\circ} 46'$	At sea†.
$-31^{\circ} 32'$	$355^{\circ} 37'$	Feb. 1840.	Ross.	$21^{\circ} 54'$	$-0^{\circ} 02'$	$21^{\circ} 52'$	At sea†.
$-34^{\circ} 45'$	$355^{\circ} 39'$	Feb. 1847.	Stanley.	$21^{\circ} 43'$	$-1^{\circ} 16'$	$20^{\circ} 27'$	At sea†.
$-35^{\circ} 23'$	$356^{\circ} 39'$	Feb. 1847.	Stanley.	$23^{\circ} 08'$	$-1^{\circ} 16'$	$21^{\circ} 52'$	At sea†.
$-35^{\circ} 30'$	$357^{\circ} 00'$	Feb. 1847.	Stanley.	$22^{\circ} 41'$	$-1^{\circ} 16'$	$21^{\circ} 25'$	At sea†.
$-35^{\circ} 42'$	$357^{\circ} 09'$	Nov. 1842.	Bérard.	$21^{\circ} 00'$	$-0^{\circ} 29'$	$20^{\circ} 31'$	At sea.
$-36^{\circ} 58'$	$358^{\circ} 28'$	Feb. 1847.	Stanley.	$22^{\circ} 16'$	$-1^{\circ} 12'$	$21^{\circ} 04'$	At sea†.
$-31^{\circ} 01'$	$359^{\circ} 26'$	Feb. 1840.	Ross.	$23^{\circ} 29'$	$0^{\circ} 00'$	$23^{\circ} 29'$	At sea†.
$-31^{\circ} 13'$	$359^{\circ} 31'$	Feb. 1840.	Ross.	$23^{\circ} 02'$	$0^{\circ} 00'$	$23^{\circ} 02'$	At sea†.
$-30^{\circ} 30'$	$359^{\circ} 36'$	Feb. 1840.	Ross.	$23^{\circ} 08'$	$0^{\circ} 00'$	$23^{\circ} 08'$	At sea†.
$-38^{\circ} 23'$	$359^{\circ} 37'$	Feb. 1847.	Stanley.	$22^{\circ} 28'$	$-1^{\circ} 04'$	$21^{\circ} 24'$	At sea†.
$-31^{\circ} 28'$	$359^{\circ} 38'$	Feb. 1840.	Ross.	$23^{\circ} 41'$	$0^{\circ} 00'$	$23^{\circ} 41'$	At sea†.
$-31^{\circ} 19'$	$359^{\circ} 46'$	Feb. 1840.	Ross.	$23^{\circ} 08'$	$0^{\circ} 00'$	$23^{\circ} 08'$	At sea†.
$-30^{\circ} 37'$	$359^{\circ} 48'$	Feb. 1840.	Ross.	$23^{\circ} 33'$	$0^{\circ} 00'$	$23^{\circ} 33'$	At sea†.
$-38^{\circ} 52'$	$1^{\circ} 01'$	Feb. 1847.	Stanley.	$23^{\circ} 41'$	$-1^{\circ} 04'$	$22^{\circ} 37'$	At sea†.
$-32^{\circ} 00'$	$1^{\circ} 48'$	Feb. 1840.	Ross.	$24^{\circ} 07'$	$-0^{\circ} 02'$	$24^{\circ} 05'$	At sea†.
$-32^{\circ} 41'$	$4^{\circ} 24'$	Feb. 1840.	Ross.	$24^{\circ} 49'$	$-0^{\circ} 02'$	$24^{\circ} 47'$	At sea†.
$-38^{\circ} 19'$	$4^{\circ} 37'$	Mar. 1847.	Stanley.	$24^{\circ} 30'$	$-1^{\circ} 04'$	$23^{\circ} 26'$	At sea†.
$-33^{\circ} 14'$	$6^{\circ} 03'$	Mar. 1840.	Ross.	$26^{\circ} 48'$	$-0^{\circ} 02'$	$26^{\circ} 46'$	At sea†.
$-33^{\circ} 29'$	$7^{\circ} 48'$	Mar. 1840.	Ross.	$27^{\circ} 13'$	$-0^{\circ} 02'$	$27^{\circ} 11'$	At sea†.
$-33^{\circ} 27'$	$9^{\circ} 06'$	Mar. 1840.	Ross.	$28^{\circ} 27'$	$-0^{\circ} 02'$	$28^{\circ} 25'$	At sea†.
$-37^{\circ} 10'$	$9^{\circ} 28'$	Mar. 1847.	Stanley.	$27^{\circ} 12'$	$-0^{\circ} 59'$	$26^{\circ} 13'$	At sea†.
$-33^{\circ} 01'$	$9^{\circ} 52'$	Mar. 1840.	Ross.	$28^{\circ} 21'$	$-0^{\circ} 02'$	$28^{\circ} 19'$	At sea†.
$-38^{\circ} 11'$	$10^{\circ} 08'$	Nov. 1842.	Bérard.	$26^{\circ} 00'$	$-0^{\circ} 21'$	$25^{\circ} 39'$	At sea.
$-33^{\circ} 14'$	$10^{\circ} 37'$	Mar. 1840.	Ross.	$29^{\circ} 22'$	$-0^{\circ} 02'$	$29^{\circ} 20'$	At sea†.
$-30^{\circ} 02'$	$11^{\circ} 38'$	April 1839.	Du Petit-Thouars.	$26^{\circ} 21'$	$+0^{\circ} 06'$	$26^{\circ} 27'$	At sea.
$-36^{\circ} 40'$	$12^{\circ} 05'$	Mar. 1847.	Stanley.	$27^{\circ} 50'$	$-0^{\circ} 52'$	$26^{\circ} 58'$	At sea†.
$-31^{\circ} 25'$	$13^{\circ} 22'$	April 1839.	Du Petit-Thouars.	$27^{\circ} 19'$	$+0^{\circ} 05'$	$27^{\circ} 24'$	At sea.
$-35^{\circ} 10'$	$13^{\circ} 25'$	Jan. 1845.	Moore and Clerk.	$25^{\circ} 10'$	$-0^{\circ} 35'$	$25^{\circ} 05'$	At sea†.
$-33^{\circ} 00'$	$13^{\circ} 36'$	Mar. 1840.	Ross.	$28^{\circ} 44'$	$-0^{\circ} 02'$	$28^{\circ} 42'$	At sea†.
$-36^{\circ} 20'$	$13^{\circ} 48'$	Mar. 1847.	Stanley.	$28^{\circ} 27'$	$-0^{\circ} 48'$	$27^{\circ} 39'$	At sea†.
$-35^{\circ} 17'$	$14^{\circ} 00'$	Jan. 1845.	Moore and Clerk.	$27^{\circ} 15'$	$-0^{\circ} 20'$	$26^{\circ} 45'$	At sea†.
$-30^{\circ} 40'$	$14^{\circ} 09'$	Aug. 1837.	Vaillant.	$28^{\circ} 35'$	$+0^{\circ} 17'$	$28^{\circ} 52'$	At sea.
$-32^{\circ} 53'$	$14^{\circ} 21'$	Mar. 1840.	Ross.	$29^{\circ} 36'$	$-0^{\circ} 02'$	$29^{\circ} 34'$	At sea†.
$-38^{\circ} 43'$	$14^{\circ} 25'$	Jan. 1845.	Moore and Clerk.	$25^{\circ} 09'$	$-0^{\circ} 30'$	$24^{\circ} 39'$	At sea†.
$-39^{\circ} 18'$	$14^{\circ} 28'$	Jan. 1845.	Moore and Clerk.	$28^{\circ} 20'$	$-0^{\circ} 30'$	$27^{\circ} 50'$	At sea†.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correction for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of -30° and -40° (continued).							
$-35^{\circ} 26'$	$15^{\circ} 08'$	Jan. 1845.	Moore and Clerk.	$28^{\circ} 39'$	$-0^{\circ} 30'$	$28^{\circ} 09'$	At sea†.
$-32^{\circ} 57'$	$15^{\circ} 27'$	Aug. 1842.	Jehenne.	$31^{\circ} 16'$	$-0^{\circ} 16'$	$31^{\circ} 00'$	At sea.
$-32^{\circ} 23'$	$15^{\circ} 52'$	Mar. 1840.	Ross.	$29^{\circ} 23'$	$-0^{\circ} 02'$	$29^{\circ} 21'$	At sea†.
$-33^{\circ} 45'$	$15^{\circ} 52'$	Aug. 1837.	Vaillant.	$28^{\circ} 43'$	$+0^{\circ} 18'$	$29^{\circ} 01'$	At sea.
$-32^{\circ} 03'$	$15^{\circ} 53'$	Aug. 1837.	Vaillant.	$27^{\circ} 16'$	$+0^{\circ} 18'$	$27^{\circ} 34'$	At sea.
$-33^{\circ} 28'$	$15^{\circ} 58'$	April 1843.	Du Petit-Thouars.	$26^{\circ} 37'$	$+0^{\circ} 04'$	$26^{\circ} 41'$	At sea.
$-39^{\circ} 11'$	$15^{\circ} 59'$	Mar. 1843.	Ross.	$28^{\circ} 22'$	$-0^{\circ} 21'$	$28^{\circ} 01'$	At sea†.
$-39^{\circ} 52'$	$16^{\circ} 04'$	Mar. 1843.	Crozier.	$26^{\circ} 38'$	$-0^{\circ} 21'$	$26^{\circ} 17'$	At sea†.
$-35^{\circ} 59'$	$16^{\circ} 22'$	Mar. 1843.	Crozier.	$27^{\circ} 50'$	$-0^{\circ} 21'$	$27^{\circ} 29'$	At sea†.
$-38^{\circ} 26'$	$16^{\circ} 39'$	April 1843.	Ross.	$29^{\circ} 24'$	$-0^{\circ} 21'$	$29^{\circ} 03'$	At sea†.
$-35^{\circ} 42'$	$16^{\circ} 44'$	April 1843.	Crozier.	$27^{\circ} 11'$	$-0^{\circ} 21'$	$26^{\circ} 50'$	At sea†.
$-32^{\circ} 49'$	$16^{\circ} 53'$	Mar. 1840.	Ross.	$29^{\circ} 29'$	$-0^{\circ} 02'$	$29^{\circ} 27'$	At sea†.
$-32^{\circ} 33'$	$16^{\circ} 55'$	Mar. 1840.	Ross.	$29^{\circ} 25'$	$-0^{\circ} 02'$	$29^{\circ} 23'$	At sea†.
$-33^{\circ} 21'$	$17^{\circ} 07'$	Mar. 1840.	Ross.	$29^{\circ} 34'$	$-0^{\circ} 02'$	$29^{\circ} 32'$	At sea†.
$-32^{\circ} 59'$	$17^{\circ} 08'$	Mar. 1840.	Ross.	$29^{\circ} 46'$	$-0^{\circ} 02'$	$29^{\circ} 44'$	At sea†.
$-34^{\circ} 42'$	$17^{\circ} 36'$	Jan. 1845.	Moore and Clerk.	$29^{\circ} 51'$	$-0^{\circ} 32'$	$29^{\circ} 19'$	At sea†.
$-34^{\circ} 37'$	$17^{\circ} 51'$	Mar. 1840.	Ross.	$30^{\circ} 10'$	$-0^{\circ} 02'$	$30^{\circ} 08'$	At sea†.
$-34^{\circ} 38'$	$17^{\circ} 59'$	April 1839.	Du Petit-Thouars.	$27^{\circ} 45'$	$+0^{\circ} 04'$	$27^{\circ} 49'$	At sea.
$-34^{\circ} 18'$	$18^{\circ} 03'$	Mar. 1840.	Ross.	$29^{\circ} 33'$	$-0^{\circ} 02'$	$29^{\circ} 31'$	At sea†.
$-34^{\circ} 12'$	$18^{\circ} 26'$	1840.	Ross.	$29^{\circ} 04'$	$-0^{\circ} 02'$	$29^{\circ} 02'$	At sea†.
$-34^{\circ} 11'$	$18^{\circ} 27'$	April 1839.	Du Petit-Thouars.	$29^{\circ} 09'$	$+0^{\circ} 04'$	$29^{\circ} 13'$	False Bay.
$-33^{\circ} 56'$	$18^{\circ} 29'$	1841.	Magnetic Observy.	$29^{\circ} 07'$	$0^{\circ} 00'$	$29^{\circ} 07'$	Cape of Good Hope.
$-34^{\circ} 18'$	$18^{\circ} 41'$	Mar. 1830.	Du Petit-Thouars.	$29^{\circ} 38'$	$+0^{\circ} 04'$	$29^{\circ} 42'$	At sea.
Between the latitudes of -40° and -50° .							
$-49^{\circ} 39'$	$292^{\circ} 05'$	April 1834.	FitzRoy.	$-20^{\circ} 18'$	$+0^{\circ} 14'$	$-20^{\circ} 04'$	At sea.
$-49^{\circ} 14'$	$292^{\circ} 15'$	1833.	FitzRoy.	$-21^{\circ} 10'$	$+0^{\circ} 16'$	$-20^{\circ} 54'$	Wood Mount.
$-49^{\circ} 15'$	$292^{\circ} 18'$	1833.	FitzRoy.	$-21^{\circ} 00'$	$+0^{\circ} 16'$	$-20^{\circ} 44'$	Sholl Point.
$-49^{\circ} 11'$	$292^{\circ} 23'$	1833.	FitzRoy.	$-21^{\circ} 00'$	$+0^{\circ} 16'$	$-20^{\circ} 44'$	Port San Julian.
$-49^{\circ} 14'$	$292^{\circ} 24'$	1833.	FitzRoy.	$-21^{\circ} 00'$	$+0^{\circ} 16'$	$-20^{\circ} 44'$	Desengaño.
$-45^{\circ} 57'$	$292^{\circ} 26'$	1833.	FitzRoy.	$-19^{\circ} 42'$	$+0^{\circ} 16'$	$-19^{\circ} 26'$	Point Marques.
$-48^{\circ} 10'$	$292^{\circ} 30'$	Jan. 1834.	FitzRoy.	$-20^{\circ} 50'$	$+0^{\circ} 15'$	$-20^{\circ} 35'$	At sea.
$-46^{\circ} 31'$	$292^{\circ} 37'$	1833.	FitzRoy.	$-19^{\circ} 40'$	$+0^{\circ} 16'$	$-19^{\circ} 24'$	Murphy Head.
$-45^{\circ} 46'$	$292^{\circ} 38'$	1833.	FitzRoy.	$-19^{\circ} 40'$	$+0^{\circ} 16'$	$-19^{\circ} 24'$	Cordova Head.
$-48^{\circ} 47'$	$292^{\circ} 45'$	Jan. 1834.	FitzRoy.	$-21^{\circ} 28'$	$+0^{\circ} 15'$	$-21^{\circ} 13'$	At sea.
$-49^{\circ} 10'$	$292^{\circ} 45'$	Jan. 1834.	FitzRoy.	$-19^{\circ} 47'$	$+0^{\circ} 15'$	$-19^{\circ} 32'$	At sea.
$-46^{\circ} 41'$	$292^{\circ} 50'$	1833.	FitzRoy.	$-20^{\circ} 00'$	$+0^{\circ} 16'$	$-19^{\circ} 44'$	Bauza Head.
$-48^{\circ} 35'$	$293^{\circ} 07'$	1833.	FitzRoy.	$-21^{\circ} 00'$	$+0^{\circ} 16'$	$-20^{\circ} 44'$	Lookout Point.
$-45^{\circ} 10'$	$293^{\circ} 28'$	1833.	FitzRoy.	$-19^{\circ} 30'$	$+0^{\circ} 16'$	$-19^{\circ} 14'$	Malaspina Cove.
$-47^{\circ} 49'$	$293^{\circ} 37'$	1833.	FitzRoy.	$-20^{\circ} 20'$	$+0^{\circ} 16'$	$-20^{\circ} 04'$	Head of Port Desire.
$-48^{\circ} 21'$	$293^{\circ} 39'$	1833.	FitzRoy.	$-20^{\circ} 00'$	$+0^{\circ} 16'$	$-19^{\circ} 44'$	Watchman Cape.
$-48^{\circ} 29'$	$293^{\circ} 48'$	1833.	FitzRoy.	$-21^{\circ} 00'$	$+0^{\circ} 16'$	$-20^{\circ} 44'$	Bellaco Rock.
$-48^{\circ} 23'$	$293^{\circ} 50'$	Jan. 1834.	FitzRoy.	$-19^{\circ} 43'$	$+0^{\circ} 15'$	$-19^{\circ} 28'$	At sea.
$-47^{\circ} 45'$	$294^{\circ} 00'$	Jan. 1834.	FitzRoy.	$-20^{\circ} 30'$	$+0^{\circ} 15'$	$-20^{\circ} 15'$	At sea.
$-48^{\circ} 45'$	$294^{\circ} 00'$	Jan. 1834.	FitzRoy.	$-18^{\circ} 22'$	$+0^{\circ} 15'$	$-18^{\circ} 07'$	At sea.
$-47^{\circ} 45'$	$294^{\circ} 08'$	Jan. 1834.	FitzRoy.	$-19^{\circ} 57'$	$+0^{\circ} 15'$	$-19^{\circ} 42'$	Port Desire.
$-47^{\circ} 06'$	$294^{\circ} 09'$	1833.	FitzRoy.	$-19^{\circ} 20'$	$+0^{\circ} 17'$	$-19^{\circ} 03'$	Cape Three Points.
$-45^{\circ} 04'$	$294^{\circ} 12'$	1833.	FitzRoy.	$-19^{\circ} 20'$	$+0^{\circ} 17'$	$-19^{\circ} 03'$	Melo Port.
$-47^{\circ} 57'$	$294^{\circ} 14'$	1833.	FitzRoy.	$-20^{\circ} 50'$	$+0^{\circ} 17'$	$-20^{\circ} 33'$	Sea-Bear Bay.
$-47^{\circ} 12'$	$294^{\circ} 17'$	1833.	FitzRoy.	$-19^{\circ} 30'$	$+0^{\circ} 17'$	$-19^{\circ} 13'$	Cape Blanco.
$-45^{\circ} 04'$	$294^{\circ} 19'$	1833.	FitzRoy.	$-19^{\circ} 00'$	$+0^{\circ} 17'$	$-18^{\circ} 43'$	South Cape.
$-44^{\circ} 56'$	$294^{\circ} 28'$	1833.	FitzRoy.	$-19^{\circ} 00'$	$+0^{\circ} 17'$	$-18^{\circ} 43'$	Blanco Islet.
$-44^{\circ} 31'$	$294^{\circ} 38'$	1833.	FitzRoy.	$-19^{\circ} 08'$	$+0^{\circ} 17'$	$-18^{\circ} 51'$	Santa Elena.
$-43^{\circ} 47'$	$294^{\circ} 43'$	1833.	FitzRoy.	$-18^{\circ} 30'$	$+0^{\circ} 17'$	$-18^{\circ} 13'$	Lobos Head.
$-49^{\circ} 47'$	$294^{\circ} 44'$	April 1834.	FitzRoy.	$-22^{\circ} 50'$	$+0^{\circ} 15'$	$-22^{\circ} 35'$	At sea.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correc- tion for Epoch.	Corrected Declina- tion.	Remarks.
Between the latitudes of -40° and -50° (continued).							
$-44^{\circ} 12'$	$294^{\circ} 45'$	1833.	FitzRoy.	$-18^{\circ} 50'$	$+0^{\circ} 17'$	$-18^{\circ} 33'$	Atlas Point.
$-47^{\circ} 11'$	$294^{\circ} 56'$	Dec. 1833.	FitzRoy.	$-19^{\circ} 50'$	$+0^{\circ} 16'$	$-19^{\circ} 34'$	Chupat River.
$-43^{\circ} 21'$	$294^{\circ} 57'$	April 1824.	FitzRoy.	$-18^{\circ} 06'$	$+0^{\circ} 15'$	$-17^{\circ} 51'$	At sea.
$-42^{\circ} 47'$	$295^{\circ} 00'$	1833.	FitzRoy.	$-17^{\circ} 50'$	$+0^{\circ} 16'$	$-17^{\circ} 34'$	Western Port.
$-41^{\circ} 40'$	$295^{\circ} 06'$	1833.	FitzRoy.	$-17^{\circ} 50'$	$+0^{\circ} 16'$	$-17^{\circ} 34'$	Pozos Point.
$-40^{\circ} 49'$	$295^{\circ} 06'$	1833.	FitzRoy.	$-17^{\circ} 40'$	$+0^{\circ} 16'$	$-17^{\circ} 24'$	Port San Antonio.
$-42^{\circ} 08'$	$295^{\circ} 33'$	April 1833.	FitzRoy.	$-16^{\circ} 53'$	$+0^{\circ} 16'$	$-16^{\circ} 37'$	At sea.
$-48^{\circ} 46'$	$295^{\circ} 36'$	Jan. 1834.	FitzRoy.	$-19^{\circ} 18'$	$+0^{\circ} 15'$	$-19^{\circ} 03'$	At sea.
$-42^{\circ} 14'$	$295^{\circ} 38'$	1833.	FitzRoy.	$-17^{\circ} 45'$	$+0^{\circ} 17'$	$-17^{\circ} 28'$	Entrance Point.
$-42^{\circ} 58'$	$295^{\circ} 41'$	1833.	FitzRoy.	$-17^{\circ} 50'$	$+0^{\circ} 17'$	$-17^{\circ} 33'$	Point Ninfas.
$-42^{\circ} 35'$	$295^{\circ} 42'$	1833.	FitzRoy.	$-17^{\circ} 50'$	$+0^{\circ} 17'$	$-17^{\circ} 33'$	Pyramid.
$-42^{\circ} 53'$	$295^{\circ} 53'$	1833.	FitzRoy.	$-17^{\circ} 50'$	$+0^{\circ} 17'$	$-17^{\circ} 33'$	Nuevo Head.
$-41^{\circ} 09'$	$296^{\circ} 05'$	1833.	FitzRoy.	$-17^{\circ} 40'$	$+0^{\circ} 17'$	$-17^{\circ} 23'$	Belen Bluff.
$-42^{\circ} 03'$	$296^{\circ} 12'$	1833.	FitzRoy.	$-17^{\circ} 50'$	$+0^{\circ} 17'$	$-17^{\circ} 33'$	Norte Point.
$-42^{\circ} 46'$	$296^{\circ} 24'$	1833.	FitzRoy.	$-17^{\circ} 50'$	$+0^{\circ} 17'$	$-17^{\circ} 33'$	Delgado Point.
$-42^{\circ} 30'$	$296^{\circ} 25'$	1833.	FitzRoy.	$-17^{\circ} 50'$	$+0^{\circ} 17'$	$-17^{\circ} 33'$	Valdes Port.
$-40^{\circ} 48'$	$297^{\circ} 02'$	1833.	FitzRoy.	$-17^{\circ} 00'$	$+0^{\circ} 17'$	$-16^{\circ} 43'$	Del Carmen Fort.
$-41^{\circ} 02'$	$297^{\circ} 15'$	1833.	FitzRoy.	$-17^{\circ} 40'$	$+0^{\circ} 17'$	$-17^{\circ} 23'$	Negro River.
$-45^{\circ} 12'$	$297^{\circ} 37'$	Dec. 1832.	FitzRoy.	$-17^{\circ} 25'$	$+0^{\circ} 24'$	$-17^{\circ} 01'$	At sea.
$-40^{\circ} 52'$	$297^{\circ} 42'$	1833.	FitzRoy.	$-17^{\circ} 00'$	$+0^{\circ} 20'$	$-16^{\circ} 40'$	Raza Point.
$-49^{\circ} 29'$	$297^{\circ} 45'$	May 1836.	Vaillant.	$-19^{\circ} 36'$	$+0^{\circ} 09'$	$-19^{\circ} 27'$	At sea.
$-49^{\circ} 39'$	$297^{\circ} 48'$	Mar. 1837.	Du Petit-Thouars.	$-17^{\circ} 00'$	$+0^{\circ} 07'$	$-16^{\circ} 53'$	At sea.
$-40^{\circ} 36'$	$297^{\circ} 51'$	1833.	FitzRoy.	$-16^{\circ} 30'$	$+0^{\circ} 18'$	$-16^{\circ} 12'$	Rubia Point.
$-40^{\circ} 46'$	$297^{\circ} 54'$	Dec. 1832.	FitzRoy.	$-15^{\circ} 26'$	$+0^{\circ} 20'$	$-15^{\circ} 06'$	At sea.
$-40^{\circ} 27'$	$298^{\circ} 00'$	Aug. 1833.	FitzRoy.	$-16^{\circ} 16'$	$+0^{\circ} 18'$	$-15^{\circ} 58'$	At sea.
$-40^{\circ} 27'$	$298^{\circ} 06'$	1833.	FitzRoy.	$-16^{\circ} 30'$	$+0^{\circ} 18'$	$-16^{\circ} 12'$	Snake Bank.
$-45^{\circ} 26'$	$298^{\circ} 18'$	May 1836.	Vaillant.	$-16^{\circ} 52'$	$+0^{\circ} 12'$	$-16^{\circ} 40'$	At sea.
$-40^{\circ} 52'$	$298^{\circ} 23'$	Aug. 1833.	FitzRoy.	$-16^{\circ} 42'$	$+0^{\circ} 18'$	$-16^{\circ} 24'$	At sea.
$-47^{\circ} 30'$	$298^{\circ} 27'$	May 1836.	Vaillant.	$-16^{\circ} 16'$	$+0^{\circ} 12'$	$-16^{\circ} 04'$	At sea.
$-42^{\circ} 16'$	$298^{\circ} 28'$	Dec. 1832.	FitzRoy.	$-16^{\circ} 12'$	$+0^{\circ} 22'$	$-15^{\circ} 50'$	At sea.
$-43^{\circ} 56'$	$298^{\circ} 35'$	Dec. 1832.	FitzRoy.	$-16^{\circ} 40'$	$+0^{\circ} 22'$	$-16^{\circ} 18'$	At sea.
$-44^{\circ} 30'$	$298^{\circ} 42'$	Dec. 1833.	FitzRoy.	$-18^{\circ} 14'$	$+0^{\circ} 20'$	$-17^{\circ} 54'$	At sea.
$-43^{\circ} 14'$	$298^{\circ} 43'$	Dec. 1832.	FitzRoy.	$-16^{\circ} 20'$	$+0^{\circ} 22'$	$-15^{\circ} 58'$	At sea.
$-41^{\circ} 17'$	$298^{\circ} 47'$	Aug. 1833.	FitzRoy.	$-14^{\circ} 23'$	$+0^{\circ} 21'$	$-14^{\circ} 02'$	At sea.
$-45^{\circ} 30'$	$298^{\circ} 58'$	Mar. 1837.	Du Petit-Thouars.	$-15^{\circ} 42'$	$+0^{\circ} 11'$	$-15^{\circ} 31'$	At sea.
$-43^{\circ} 27'$	$300^{\circ} 01'$	Dec. 1833.	FitzRoy.	$-15^{\circ} 46'$	$+0^{\circ} 26'$	$-15^{\circ} 20'$	At sea.
$-42^{\circ} 44'$	$300^{\circ} 29'$	May 1836.	Vaillant.	$-14^{\circ} 10'$	$+0^{\circ} 15'$	$-13^{\circ} 55'$	At sea.
$-42^{\circ} 34'$	$301^{\circ} 06'$	Dec. 1833.	FitzRoy.	$-16^{\circ} 01'$	$+0^{\circ} 30'$	$-15^{\circ} 31'$	At sea.
$-43^{\circ} 05'$	$302^{\circ} 50'$	Mar. 1837.	Du Petit-Thouars.	$-14^{\circ} 10'$	$+0^{\circ} 14'$	$-13^{\circ} 56'$	At sea.
$-40^{\circ} 30'$	$303^{\circ} 07'$	May 1836.	Vaillant.	$-10^{\circ} 57'$	$+0^{\circ} 18'$	$-10^{\circ} 39'$	At sea.
$-41^{\circ} 56'$	$304^{\circ} 55'$	Mar. 1837.	Du Petit-Thouars.	$-14^{\circ} 20'$	$+0^{\circ} 14'$	$-14^{\circ} 06'$	At sea.
$-40^{\circ} 24'$	$306^{\circ} 42'$	Feb. 1837.	Du Petit-Thouars.	$-12^{\circ} 05'$	$+0^{\circ} 14'$	$-11^{\circ} 51'$	At sea.
$-41^{\circ} 41'$	$306^{\circ} 48'$	Feb. 1837.	Du Petit-Thouars.	$-13^{\circ} 12'$	$+0^{\circ} 14'$	$-12^{\circ} 58'$	At sea.
$-44^{\circ} 04'$	$307^{\circ} 25'$	April 1830.	Erman.	$-13^{\circ} 40'$	$+0^{\circ} 49'$	$-12^{\circ} 51'$	At sea.
$-48^{\circ} 49'$	$10^{\circ} 16'$	Mar. 1843.	Ross.	$+24^{\circ} 32'$	$-0^{\circ} 30'$	$+24^{\circ} 02'$	At sea.
$-48^{\circ} 13'$	$10^{\circ} 29'$	Mar. 1843.	Crozier.	$23^{\circ} 56'$	$-0^{\circ} 30'$	$23^{\circ} 26'$	At sea†.
$-48^{\circ} 27'$	$10^{\circ} 51'$	Jan. 1845.	Moore and Clerk.	$24^{\circ} 50'$	$-0^{\circ} 47'$	$24^{\circ} 03'$	At sea†.
$-44^{\circ} 45'$	$13^{\circ} 19'$	Jan. 1845.	Moore and Clerk.	$26^{\circ} 34'$	$-0^{\circ} 47'$	$25^{\circ} 47'$	At sea†.
$-46^{\circ} 24'$	$13^{\circ} 34'$	Jan. 1845.	Moore and Clerk.	$25^{\circ} 54'$	$-0^{\circ} 47'$	$25^{\circ} 07'$	At sea†.
$-43^{\circ} 36'$	$13^{\circ} 47'$	Mar. 1843.	Crozier.	$26^{\circ} 40'$	$-0^{\circ} 30'$	$26^{\circ} 10'$	At sea†.
$-43^{\circ} 28'$	$14^{\circ} 32'$	Mar. 1843.	Ross.	$28^{\circ} 18'$	$-0^{\circ} 30'$	$27^{\circ} 48'$	At sea†.
$-40^{\circ} 15'$	$14^{\circ} 35'$	Jan. 1845.	Moore and Clerk.	$27^{\circ} 40'$	$-0^{\circ} 45'$	$26^{\circ} 55'$	At sea†.
$-41^{\circ} 51'$	$15^{\circ} 03'$	Mar. 1843.	Crozier.	$27^{\circ} 05'$	$-0^{\circ} 30'$	$26^{\circ} 35'$	At sea†.
$-41^{\circ} 38'$	$15^{\circ} 12'$	Mar. 1843.	Ross.	$28^{\circ} 40'$	$-0^{\circ} 30'$	$28^{\circ} 10'$	At sea†.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correc- tion for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of -50° and -60° .							
$-53^{\circ} 33'$	$287^{\circ} 34'$	1834.	FitzRoy.	$-23^{\circ} 35'$	$+0^{\circ} 03'$	$-23^{\circ} 32'$	Crosstide Cape.
$-53^{\circ} 31'$	$287^{\circ} 35'$	1834.	FitzRoy.	$-24^{\circ} 00'$	$+0^{\circ} 03'$	$-23^{\circ} 57'$	St. Jerome Point.
$-54^{\circ} 35'$	$287^{\circ} 38'$	1834.	FitzRoy.	$-25^{\circ} 00'$	$+0^{\circ} 03'$	$-24^{\circ} 57'$	West Furies.
$-53^{\circ} 33'$	$287^{\circ} 41'$	1834.	FitzRoy.	$-24^{\circ} 06'$	$+0^{\circ} 03'$	$-24^{\circ} 03'$	Bachelor River.
$-54^{\circ} 24'$	$287^{\circ} 42'$	1834.	FitzRoy.	$-24^{\circ} 30'$	$+0^{\circ} 03'$	$-24^{\circ} 27'$	North Cove.
$-54^{\circ} 02'$	$287^{\circ} 45'$	1834.	FitzRoy.	$-24^{\circ} 00'$	$+0^{\circ} 03'$	$-23^{\circ} 57'$	Bowles Island.
$-53^{\circ} 11'$	$287^{\circ} 47'$	1834.	FitzRoy.	$-23^{\circ} 45'$	$+0^{\circ} 03'$	$-23^{\circ} 42'$	Gidley Islet.
$-54^{\circ} 38'$	$287^{\circ} 48'$	1834.	FitzRoy.	$-25^{\circ} 00'$	$+0^{\circ} 03'$	$-24^{\circ} 57'$	East Furies.
$-54^{\circ} 34'$	$287^{\circ} 48'$	1834.	FitzRoy.	$-25^{\circ} 00'$	$+0^{\circ} 03'$	$-24^{\circ} 57'$	Tussuck Rock.
$-54^{\circ} 25'$	$287^{\circ} 49'$	1834.	FitzRoy.	$-24^{\circ} 30'$	$+0^{\circ} 03'$	$-24^{\circ} 27'$	Mount Skyring.
$-54^{\circ} 39'$	$287^{\circ} 53'$	1834.	FitzRoy.	$-24^{\circ} 40'$	$+0^{\circ} 03'$	$-24^{\circ} 37'$	Cape Schomburgk.
$-54^{\circ} 36'$	$287^{\circ} 55'$	1834.	FitzRoy.	$-24^{\circ} 40'$	$+0^{\circ} 03'$	$-24^{\circ} 37'$	Astrea Island.
$-53^{\circ} 42'$	$287^{\circ} 59'$	1834.	FitzRoy.	$-24^{\circ} 04'$	$+0^{\circ} 03'$	$-24^{\circ} 01'$	Gallant Port.
$-54^{\circ} 42'$	$288^{\circ} 05'$	1834.	FitzRoy.	$-24^{\circ} 34'$	$+0^{\circ} 04'$	$-24^{\circ} 30'$	Townshend Harbour.
$-53^{\circ} 05'$	$288^{\circ} 07'$	1834.	FitzRoy.	$-23^{\circ} 56'$	$+0^{\circ} 04'$	$-23^{\circ} 52'$	Inglefield Island.
$-53^{\circ} 55'$	$288^{\circ} 10'$	1834.	FitzRoy.	$-23^{\circ} 40'$	$+0^{\circ} 04'$	$-23^{\circ} 36'$	San Antonio.
$-53^{\circ} 49'$	$288^{\circ} 21'$	1834.	FitzRoy.	$-23^{\circ} 50'$	$+0^{\circ} 04'$	$-23^{\circ} 46'$	Cape Holland.
$-54^{\circ} 46'$	$288^{\circ} 23'$	1834.	FitzRoy.	$-24^{\circ} 30'$	$+0^{\circ} 04'$	$-24^{\circ} 26'$	Cape Desolation.
$-52^{\circ} 39'$	$288^{\circ} 29'$	1834.	FitzRoy.	$-23^{\circ} 00'$	$+0^{\circ} 04'$	$-22^{\circ} 56'$	FitzRoy Passage.
$-52^{\circ} 39'$	$288^{\circ} 30'$	1834.	FitzRoy.	$-23^{\circ} 34'$	$+0^{\circ} 04'$	$-23^{\circ} 30'$	Bennett Point.
$-54^{\circ} 56'$	$288^{\circ} 32'$	1834.	FitzRoy.	$-24^{\circ} 15'$	$+0^{\circ} 04'$	$-24^{\circ} 11'$	Castlereagh Cape.
$-55^{\circ} 03'$	$288^{\circ} 37'$	1834.	FitzRoy.	$-24^{\circ} 20'$	$+0^{\circ} 05'$	$-24^{\circ} 15'$	Nicholson Rocks.
$-55^{\circ} 47'$	$288^{\circ} 41'$	1834.	FitzRoy.	$-24^{\circ} 10'$	$+0^{\circ} 05'$	$-24^{\circ} 05'$	Catherine Island.
$-53^{\circ} 54'$	$288^{\circ} 42'$	1834.	FitzRoy.	$-23^{\circ} 20'$	$+0^{\circ} 05'$	$-23^{\circ} 15'$	Cape Froward.
$-54^{\circ} 23'$	$288^{\circ} 43'$	1834.	FitzRoy.	$-23^{\circ} 50'$	$+0^{\circ} 05'$	$-23^{\circ} 45'$	King Island.
$-54^{\circ} 59'$	$288^{\circ} 50'$	1834.	FitzRoy.	$-24^{\circ} 16'$	$+0^{\circ} 05'$	$-24^{\circ} 11'$	Doris Cove.
$-54^{\circ} 24'$	$288^{\circ} 52'$	1834.	FitzRoy.	$-24^{\circ} 57'$	$+0^{\circ} 05'$	$-24^{\circ} 52'$	Warping Cove.
$-55^{\circ} 04'$	$288^{\circ} 52'$	1834.	FitzRoy.	$-24^{\circ} 16'$	$+0^{\circ} 05'$	$-24^{\circ} 11'$	Hat Isle.
$-54^{\circ} 24'$	$288^{\circ} 53'$	1834.	FitzRoy.	$-24^{\circ} 00'$	$+0^{\circ} 05'$	$-23^{\circ} 55'$	Tarn Cape.
$-57^{\circ} 35'$	$288^{\circ} 54'$	Apr. 1842.	Crozier.	$-25^{\circ} 16'$	$-0^{\circ} 02'$	$-25^{\circ} 18'$	At sea†.
$-55^{\circ} 08'$	$288^{\circ} 58'$	1834.	FitzRoy.	$-24^{\circ} 15'$	$+0^{\circ} 05'$	$-24^{\circ} 10'$	Treble Island.
$-53^{\circ} 47'$	$289^{\circ} 02'$	1834.	FitzRoy.	$-23^{\circ} 40'$	$+0^{\circ} 06'$	$-23^{\circ} 34'$	Cape San Isidoro.
$-53^{\circ} 21'$	$289^{\circ} 02'$	1834.	FitzRoy.	$-23^{\circ} 26'$	$+0^{\circ} 06'$	$-23^{\circ} 20'$	Point St. Mary.
$-53^{\circ} 38'$	$289^{\circ} 02'$	1834.	FitzRoy.	$-23^{\circ} 40'$	$+0^{\circ} 06'$	$-23^{\circ} 34'$	Port Famine Observatory.
$-53^{\circ} 38'$	$289^{\circ} 05'$	1834.	FitzRoy.	$-23^{\circ} 00'$	$+0^{\circ} 06'$	$-22^{\circ} 54'$	Point Santa Anna.
$-52^{\circ} 55'$	$289^{\circ} 12'$	1834.	FitzRoy.	$-23^{\circ} 30'$	$+0^{\circ} 06'$	$-23^{\circ} 24'$	Porpoise Point.
$-52^{\circ} 47'$	$289^{\circ} 14'$	1834.	FitzRoy.	$-23^{\circ} 29'$	$+0^{\circ} 06'$	$-23^{\circ} 23'$	Packet Harbour.
$-53^{\circ} 44'$	$289^{\circ} 17'$	1834.	FitzRoy.	$-23^{\circ} 20'$	$+0^{\circ} 06'$	$-23^{\circ} 14'$	Quoin Head.
$-52^{\circ} 42'$	$289^{\circ} 23'$	1834.	FitzRoy.	$-23^{\circ} 50'$	$+0^{\circ} 06'$	$-23^{\circ} 44'$	Oazy Harbour.
$-52^{\circ} 49'$	$289^{\circ} 23'$	1834.	FitzRoy.	$-23^{\circ} 50'$	$+0^{\circ} 06'$	$-23^{\circ} 44'$	Elizabeth Island.
$-52^{\circ} 50'$	$289^{\circ} 25'$	1834.	FitzRoy.	$-23^{\circ} 58'$	$+0^{\circ} 06'$	$-23^{\circ} 52'$	Santa Martha Island.
$-54^{\circ} 54'$	$289^{\circ} 31'$	1833.	FitzRoy.	$-24^{\circ} 14'$	$+0^{\circ} 06'$	$-24^{\circ} 08'$	Stewart Harbour.
$-53^{\circ} 20'$	$289^{\circ} 32'$	1834.	FitzRoy.	$-23^{\circ} 00'$	$+0^{\circ} 06'$	$-22^{\circ} 54'$	Cape Monmouth.
$-53^{\circ} 01'$	$289^{\circ} 33'$	1834.	FitzRoy.	$-23^{\circ} 00'$	$+0^{\circ} 06'$	$-22^{\circ} 54'$	Point Gente Grande.
$-52^{\circ} 56'$	$289^{\circ} 37'$	1834.	FitzRoy.	$-23^{\circ} 20'$	$+0^{\circ} 06'$	$-23^{\circ} 14'$	Quarter-Master Island.
$-53^{\circ} 27'$	$289^{\circ} 47'$	1834.	FitzRoy.	$-23^{\circ} 20'$	$+0^{\circ} 06'$	$-23^{\circ} 14'$	Cape Bongainville.
$-52^{\circ} 39'$	$289^{\circ} 47'$	June 1834.	FitzRoy.	$-23^{\circ} 30'$	$+0^{\circ} 06'$	$-23^{\circ} 24'$	Gregory Bay.
$-50^{\circ} 11'$	$289^{\circ} 50'$	Apr. 1834.	FitzRoy.	$-21^{\circ} 00'$	$+0^{\circ} 06'$	$-20^{\circ} 54'$	Junction of Chalia Stream with Santa Cruz.
$-55^{\circ} 22'$	$289^{\circ} 51'$	1834.	FitzRoy.	$-24^{\circ} 10'$	$+0^{\circ} 06'$	$-24^{\circ} 04'$	Mary Point.
$-52^{\circ} 45'$	$289^{\circ} 52'$	Jan. 1834.	FitzRoy.	$-23^{\circ} 38'$	$+0^{\circ} 06'$	$-23^{\circ} 32'$	At sea.
$-55^{\circ} 23'$	$290^{\circ} 00'$	1834.	FitzRoy.	$-24^{\circ} 04'$	$+0^{\circ} 06'$	$-23^{\circ} 58'$	March Harbour.
$-55^{\circ} 27'$	$290^{\circ} 12'$	1834.	FitzRoy.	$-24^{\circ} 00'$	$+0^{\circ} 06'$	$-23^{\circ} 54'$	Nativity Cape.
$-55^{\circ} 24'$	$290^{\circ} 15'$	1834.	FitzRoy.	$-23^{\circ} 50'$	$+0^{\circ} 06'$	$-23^{\circ} 44'$	Broken Mount.
$-52^{\circ} 37'$	$290^{\circ} 15'$	1834.	FitzRoy.	$-22^{\circ} 40'$	$+0^{\circ} 06'$	$-22^{\circ} 34'$	St Philip's Bay.
$-58^{\circ} 58'$	$290^{\circ} 19'$	Mar. 1837.	Du Petit-Thouars.	$-25^{\circ} 38'$	$+0^{\circ} 03'$	$-25^{\circ} 35'$	At sea.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correction for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of -50° and -60° (continued).							
$-52^{\circ} 27'$	$290^{\circ} 32'$	1834.	FitzRoy.	$-22^{\circ} 30'$	$+0^{\circ} 06'$	$-22^{\circ} 24'$	Orange Cape.
$-52^{\circ} 15'$	$290^{\circ} 36'$	1834.	FitzRoy.	$-22^{\circ} 40'$	$+0^{\circ} 06'$	$-22^{\circ} 34'$	Magalhaens Strait.
$-55^{\circ} 51'$	$290^{\circ} 40'$	1834.	FitzRoy.	$-24^{\circ} 10'$	$+0^{\circ} 06'$	$-24^{\circ} 04'$	Ildefonso Isles.
$-53^{\circ} 23'$	$290^{\circ} 52'$	Feb. 1834.	FitzRoy.	$-24^{\circ} 40'$	$+0^{\circ} 10'$	$-24^{\circ} 30'$	At sea.
$-50^{\circ} 56'$	$290^{\circ} 54'$	1834.	FitzRoy.	$-21^{\circ} 30'$	$+0^{\circ} 11'$	$-21^{\circ} 19'$	Coy Inlet.
$-50^{\circ} 51'$	$290^{\circ} 55'$	1834.	FitzRoy.	$-21^{\circ} 30'$	$+0^{\circ} 11'$	$-21^{\circ} 19'$	Redondo Cape.
$-54^{\circ} 26'$	$290^{\circ} 57'$	1834.	FitzRoy.	$-22^{\circ} 50'$	$+0^{\circ} 08'$	$-22^{\circ} 42'$	Admiralty Sound.
$-51^{\circ} 33'$	$291^{\circ} 01'$	1834.	FitzRoy.	$-21^{\circ} 47'$	$+0^{\circ} 11'$	$-21^{\circ} 36'$	Gallegos River.
$-55^{\circ} 36'$	$291^{\circ} 02'$	1834.	FitzRoy.	$-24^{\circ} 00'$	$+0^{\circ} 08'$	$-23^{\circ} 52'$	Mount Beaufoy.
$-52^{\circ} 26'$	$291^{\circ} 03'$	1833.	FitzRoy.	$-22^{\circ} 30'$	$+0^{\circ} 13'$	$-22^{\circ} 17'$	Magalhaens Strait.
$-51^{\circ} 36'$	$291^{\circ} 04'$	Jan. 1845.	Sullivan.	$-21^{\circ} 54'$	$-0^{\circ} 10'$	$-22^{\circ} 04'$	Gallegos River.
$-52^{\circ} 17'$	$291^{\circ} 04'$	Jan. 1834.	FitzRoy.	$-22^{\circ} 40'$	$+0^{\circ} 12'$	$-22^{\circ} 28'$	Cape Possession.
$-51^{\circ} 32'$	$291^{\circ} 05'$	1833.	FitzRoy.	$-22^{\circ} 00'$	$+0^{\circ} 13'$	$-21^{\circ} 47'$	Cape Fairweather.
$-56^{\circ} 28'$	$291^{\circ} 17'$	Jan. 1833.	FitzRoy.	$-24^{\circ} 40'$	$+0^{\circ} 14'$	$-24^{\circ} 26'$	Diego Ramirez Isles, N. and S. Rocks.
$-52^{\circ} 31'$	$291^{\circ} 18'$	1833.	FitzRoy.	$-21^{\circ} 00'$	$+0^{\circ} 13'$	$-20^{\circ} 47'$	Broken Cliff Peak.
$-50^{\circ} 15'$	$291^{\circ} 29'$	1833.	FitzRoy.	$-22^{\circ} 00'$	$+0^{\circ} 13'$	$-21^{\circ} 47'$	Magalhaens Strait.
$-50^{\circ} 08'$	$291^{\circ} 33'$	Apr. 1834.	FitzRoy.	$-20^{\circ} 54'$	$+0^{\circ} 11'$	$-20^{\circ} 43'$	At sea.
$-52^{\circ} 24'$	$291^{\circ} 35'$	1833.	FitzRoy.	$-22^{\circ} 36'$	$+0^{\circ} 13'$	$-22^{\circ} 23'$	Dungeness Point.
$-50^{\circ} 07'$	$291^{\circ} 37'$	1833.	FitzRoy.	$-20^{\circ} 54'$	$+0^{\circ} 13'$	$-20^{\circ} 41'$	Keel Point.
$-52^{\circ} 20'$	$291^{\circ} 38'$	May 1834.	FitzRoy.	$-22^{\circ} 30'$	$+0^{\circ} 11'$	$-22^{\circ} 19'$	Virgin's Cape.
$-50^{\circ} 09'$	$291^{\circ} 40'$	1833.	FitzRoy.	$-22^{\circ} 54'$	$+0^{\circ} 13'$	$-22^{\circ} 41'$	Entrance Mount.
$-55^{\circ} 35'$	$291^{\circ} 31'$	Feb. 1834.	FitzRoy.	$-23^{\circ} 50'$	$+0^{\circ} 11'$	$-23^{\circ} 39'$	Middle Cove (Wollaston Island).
$-55^{\circ} 01'$	$291^{\circ} 46'$	1833.	FitzRoy.	$-23^{\circ} 40'$	$+0^{\circ} 13'$	$-23^{\circ} 27'$	Murray Narrow.
$-53^{\circ} 19'$	$291^{\circ} 50'$	Feb. 1834.	FitzRoy.	$-22^{\circ} 40'$	$+0^{\circ} 11'$	$-22^{\circ} 29'$	Cape San Sebastian.
$-55^{\circ} 05'$	$291^{\circ} 53'$	1833.	FitzRoy.	$-23^{\circ} 45'$	$+0^{\circ} 13'$	$-23^{\circ} 32'$	Button Island.
$-55^{\circ} 43'$	$291^{\circ} 54'$	1833.	FitzRoy.	$-23^{\circ} 56'$	$+0^{\circ} 13'$	$-23^{\circ} 43'$	False Cape Horn.
$-55^{\circ} 16'$	$291^{\circ} 54'$	1833.	FitzRoy.	$-23^{\circ} 40'$	$+0^{\circ} 13'$	$-23^{\circ} 27'$	Cape Webley.
$-52^{\circ} 07'$	$291^{\circ} 55'$	Jan. 1834.	FitzRoy.	$-21^{\circ} 40'$	$+0^{\circ} 12'$	$-21^{\circ} 28'$	At sea.
$-55^{\circ} 24'$	$291^{\circ} 56'$	Feb. 1833.	FitzRoy.	$-23^{\circ} 50'$	$+0^{\circ} 13'$	$-23^{\circ} 37'$	Pack Saddle Island.
$-55^{\circ} 31'$	$291^{\circ} 57'$	1833.	FitzRoy.	$-23^{\circ} 56'$	$+0^{\circ} 13'$	$-23^{\circ} 43'$	Orange Bay.
$-50^{\circ} 05'$	$291^{\circ} 57'$	Apr. 1834.	FitzRoy.	$-20^{\circ} 54'$	$+0^{\circ} 11'$	$-20^{\circ} 43'$	Port Santa Cruz.
$-55^{\circ} 40'$	$292^{\circ} 01'$	1834.	FitzRoy.	$-23^{\circ} 30'$	$+0^{\circ} 10'$	$-23^{\circ} 20'$	Lort Point.
$-55^{\circ} 19'$	$292^{\circ} 03'$	1834.	FitzRoy.	$-23^{\circ} 50'$	$+0^{\circ} 10'$	$-23^{\circ} 40'$	Vauverlandt Islet.
$-53^{\circ} 40'$	$292^{\circ} 04'$	1834.	FitzRoy.	$-22^{\circ} 50'$	$+0^{\circ} 10'$	$-22^{\circ} 40'$	Sunday Cape.
$-55^{\circ} 50'$	$292^{\circ} 06'$	1834.	FitzRoy.	$-24^{\circ} 20'$	$+0^{\circ} 10'$	$-24^{\circ} 10'$	West Point.
$-53^{\circ} 15'$	$292^{\circ} 09'$	Feb. 1834.	FitzRoy.	$-24^{\circ} 12'$	$+0^{\circ} 10'$	$-24^{\circ} 02'$	At sea.
$-55^{\circ} 55'$	$292^{\circ} 22'$	Dec. 1832.	FitzRoy.	$-24^{\circ} 30'$	$+0^{\circ} 15'$	$-24^{\circ} 15'$	Cape Spencer.
$-55^{\circ} 51'$	$292^{\circ} 26'$	Oct. 1842.	Ross.	$-23^{\circ} 41'$	$-0^{\circ} 05'$	$-23^{\circ} 46'$	St. Martin's Cove.
$-55^{\circ} 51'$	$292^{\circ} 26'$	Dec. 1832.	FitzRoy.	$-24^{\circ} 23'$	$+0^{\circ} 15'$	$-24^{\circ} 08'$	St. Martin's Cove.
$-53^{\circ} 51'$	$292^{\circ} 27'$	Dec. 1832.	FitzRoy.	$-22^{\circ} 00'$	$+0^{\circ} 15'$	$-21^{\circ} 45'$	Cape Peñas.
$-52^{\circ} 16'$	$292^{\circ} 30'$	May 1834.	FitzRoy.	$-22^{\circ} 22'$	$+0^{\circ} 10'$	$-22^{\circ} 12'$	At sea.
$-54^{\circ} 54'$	$292^{\circ} 32'$	1834.	FitzRoy.	$-23^{\circ} 00'$	$+0^{\circ} 10'$	$-22^{\circ} 50'$	Clay Cliff Narrow.
$-55^{\circ} 34'$	$292^{\circ} 40'$	1834.	FitzRoy.	$-23^{\circ} 45'$	$+0^{\circ} 10'$	$-23^{\circ} 35'$	Cape de Roos.
$-56^{\circ} 00'$	$292^{\circ} 44'$	Sept. 1842.	Ross.	$-24^{\circ} 38'$	$-0^{\circ} 05'$	$-24^{\circ} 43'$	At sea†.
$-55^{\circ} 59'$	$292^{\circ} 44'$	1834.	FitzRoy.	$-24^{\circ} 00'$	$+0^{\circ} 11'$	$-23^{\circ} 49'$	Cape Horn.
$-54^{\circ} 00'$	$292^{\circ} 45'$	Feb. 1834.	FitzRoy.	$-23^{\circ} 05'$	$+0^{\circ} 11'$	$-22^{\circ} 54'$	At sea.
$-53^{\circ} 18'$	$292^{\circ} 45'$	1834.	FitzRoy.	$-22^{\circ} 00'$	$+0^{\circ} 11'$	$-21^{\circ} 49'$	
$-52^{\circ} 39'$	$292^{\circ} 46'$	Dec. 1832.	FitzRoy.	$-21^{\circ} 31'$	$+0^{\circ} 15'$	$-21^{\circ} 16'$	
$-56^{\circ} 07'$	$292^{\circ} 53'$	Nov. 1842.	Crozier.	$-19^{\circ} 58'$	$-0^{\circ} 05'$	$-20^{\circ} 03'$	At sea†.
$-55^{\circ} 18'$	$292^{\circ} 54'$	Jan. 1833.	FitzRoy.	$-23^{\circ} 25'$	$+0^{\circ} 16'$	$-23^{\circ} 09'$	Goree Road.
$-55^{\circ} 05'$	$292^{\circ} 59'$	1834.	FitzRoy.	$-23^{\circ} 20'$	$+0^{\circ} 13'$	$-23^{\circ} 07'$	Cape Rees.
$-55^{\circ} 56'$	$293^{\circ} 01'$	1834.	FitzRoy.	$-23^{\circ} 30'$	$+0^{\circ} 13'$	$-23^{\circ} 17'$	Deceit Islets.
$-52^{\circ} 06'$	$293^{\circ} 02'$	Dec. 1832.	FitzRoy.	$-21^{\circ} 35'$	$+0^{\circ} 16'$	$-21^{\circ} 16'$	At sea.
$-55^{\circ} 23'$	$293^{\circ} 04'$	1834.	FitzRoy.	$-23^{\circ} 42'$	$+0^{\circ} 14'$	$-23^{\circ} 28'$	Terhalten Island.
$-57^{\circ} 09'$	$293^{\circ} 07'$	May 1836.	Vaillant.	$-22^{\circ} 35'$	$+0^{\circ} 09'$	$-22^{\circ} 26'$	At sea.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correc- tion for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of -50° and -60° (continued).							
$-55^{\circ} 18'$	$293^{\circ} 13'$	1834.	FitzRoy.	$-23^{\circ} 40'$	$+0^{\circ} 14'$	$-23^{\circ} 26'$	Lennox Harbour.
$-55^{\circ} 48'$	$293^{\circ} 15'$	1834.	FitzRoy.	$-23^{\circ} 00'$	$+0^{\circ} 14'$	$-22^{\circ} 46'$	Barnevelt.
$-55^{\circ} 17'$	$293^{\circ} 24'$	1834.	FitzRoy.	$-23^{\circ} 30'$	$+0^{\circ} 14'$	$-23^{\circ} 16'$	Fifty Point.
$-55^{\circ} 48'$	$293^{\circ} 37'$	Feb. 1834.	FitzRoy.	$-23^{\circ} 31'$	$+0^{\circ} 15'$	$-23^{\circ} 16'$	At sea.
$-54^{\circ} 57'$	$294^{\circ} 13'$	1834.	FitzRoy.	$-22^{\circ} 50'$	$+0^{\circ} 14'$	$-22^{\circ} 36'$	Aguirre Bay.
$-50^{\circ} 42'$	$294^{\circ} 15'$	Dec. 1832.	FitzRoy.	$-20^{\circ} 41'$	$+0^{\circ} 18'$	$-20^{\circ} 23'$	At sea.
$-56^{\circ} 46'$	$294^{\circ} 30'$	Apr. 1842.	Crozier.	$-20^{\circ} 26'$	$-0^{\circ} 06'$	$-20^{\circ} 32'$	At sea†.
$-56^{\circ} 49'$	$294^{\circ} 31'$	May 1836.	Vaillant.	$-24^{\circ} 11'$	$+0^{\circ} 09'$	$-24^{\circ} 02'$	At sea.
$-54^{\circ} 39'$	$294^{\circ} 46'$	{Dec. 1832 and Feb. 1834}	FitzRoy.	$-22^{\circ} 50'$	$+0^{\circ} 19'$	$-22^{\circ} 31'$	Cape San Vicente.
$-51^{\circ} 18'$	$294^{\circ} 46'$	Dec. 1832.	FitzRoy.	$-20^{\circ} 26'$	$+0^{\circ} 19'$	$-20^{\circ} 07'$	At sea.
$-54^{\circ} 48'$	$294^{\circ} 46'$	Dec. 1832.	FitzRoy.	$-22^{\circ} 48'$	$+0^{\circ} 19'$	$-22^{\circ} 29'$	Good Success Bay.
$-54^{\circ} 41'$	$294^{\circ} 53'$	1834.	FitzRoy.	$-22^{\circ} 50'$	$+0^{\circ} 15'$	$-22^{\circ} 35'$	Cape San Diego.
$-54^{\circ} 48'$	$295^{\circ} 15'$	1834.	FitzRoy.	$-22^{\circ} 00'$	$+0^{\circ} 15'$	$-21^{\circ} 45'$	Middle Cape.
$-54^{\circ} 54'$	$295^{\circ} 15'$	1834.	FitzRoy.	$-22^{\circ} 40'$	$+0^{\circ} 15'$	$-22^{\circ} 25'$	Cape St. Bartholomew.
$-54^{\circ} 53'$	$295^{\circ} 18'$	1828.	Foster.	$-20^{\circ} 32'$	$+0^{\circ} 32'$	$-20^{\circ} 00'$	Franklin Bay.
$-54^{\circ} 48'$	$295^{\circ} 19'$	1828.	Foster.	$-23^{\circ} 33'$	$+0^{\circ} 32'$	$-23^{\circ} 01'$	Crossley Bay.
$-55^{\circ} 42'$	$295^{\circ} 20'$	Nov. 1842.	Crozier.	$-24^{\circ} 19'$	$-0^{\circ} 08'$	$-24^{\circ} 27'$	At sea†.
$-55^{\circ} 39'$	$295^{\circ} 23'$	Nov. 1842.	Ross.	$-23^{\circ} 41'$	$-0^{\circ} 08'$	$-23^{\circ} 49'$	At sea†.
$-54^{\circ} 47'$	$295^{\circ} 27'$	1828.	Foster.	$-21^{\circ} 13'$	$+0^{\circ} 32'$	$-20^{\circ} 41'$	Flinders Bay.
$-53^{\circ} 54'$	$295^{\circ} 32'$	Mar. 1837.	Du Petit-Thouars.	$-20^{\circ} 10'$	$+0^{\circ} 07'$	$-20^{\circ} 03'$	At sea (2).
$-54^{\circ} 49'$	$295^{\circ} 38'$	1828.	Foster.	$-21^{\circ} 43'$	$+0^{\circ} 32'$	$-21^{\circ} 11'$	Port Parry.
$-54^{\circ} 42'$	$295^{\circ} 42'$	1834.	FitzRoy.	$-22^{\circ} 30'$	$+0^{\circ} 15'$	$-22^{\circ} 15'$	Cape Colnett.
$-50^{\circ} 15'$	$295^{\circ} 45'$	Apr. 1834.	FitzRoy.	$-19^{\circ} 52'$	$+0^{\circ} 15'$	$-19^{\circ} 37'$	At sea.
$-54^{\circ} 50'$	$295^{\circ} 47'$	1828.	Foster.	$-22^{\circ} 26'$	$+0^{\circ} 32'$	$-21^{\circ} 54'$	Grant Bay.
$-54^{\circ} 39'$	$295^{\circ} 54'$	1834.	FitzRoy.	$-22^{\circ} 30'$	$+0^{\circ} 15'$	$-22^{\circ} 15'$	New Year Islands.
$-54^{\circ} 46'$	$295^{\circ} 57'$	1834.	FitzRoy.	$-22^{\circ} 30'$	$+0^{\circ} 15'$	$-22^{\circ} 15'$	Port Cook.
$-54^{\circ} 46'$	$295^{\circ} 58'$	1828.	Foster.	$-22^{\circ} 15'$	$+0^{\circ} 32'$	$-21^{\circ} 43'$	Observatory.
$-54^{\circ} 43'$	$296^{\circ} 17'$	1828.	Foster.	$-22^{\circ} 30'$	$+0^{\circ} 32'$	$-21^{\circ} 58'$	Cape St. John.
$-51^{\circ} 57'$	$296^{\circ} 36'$	Mar. 1837.	Du Petit-Thouars.	$-20^{\circ} 16'$	$+0^{\circ} 07'$	$-20^{\circ} 09'$	At sea.
$-55^{\circ} 41'$	$296^{\circ} 47'$	Sept. 1842.	Crozier.	$-24^{\circ} 12'$	$-0^{\circ} 07'$	$-24^{\circ} 19'$	At sea†.
$-53^{\circ} 47'$	$297^{\circ} 01'$	May 1836.	Vaillant.	$-19^{\circ} 56'$	$+0^{\circ} 16'$	$-19^{\circ} 46'$	At sea.
$-50^{\circ} 56'$	$297^{\circ} 04'$	May 1836.	Vaillant.	$-20^{\circ} 38'$	$+0^{\circ} 10'$	$-20^{\circ} 28'$	At sea.
$-50^{\circ} 44'$	$297^{\circ} 17'$	Mar. 1837.	Du Petit-Thouars.	$-19^{\circ} 28'$	$+0^{\circ} 08'$	$-19^{\circ} 20'$	At sea.
$-51^{\circ} 43'$	$298^{\circ} 43'$	1834.	FitzRoy.	$-20^{\circ} 18'$	$+0^{\circ} 20'$	$-19^{\circ} 58'$	Ship Harbour, Falklands.
$-51^{\circ} 42'$	$298^{\circ} 43'$	Jan. 1845.	Sullivan.	$-19^{\circ} 29'$	$-0^{\circ} 19'$	$-19^{\circ} 48'$	New Island, Falklands.
$-52^{\circ} 01'$	$299^{\circ} 00'$	Feb. 1845.	Sullivan.	$-19^{\circ} 58'$	$-0^{\circ} 19'$	$-20^{\circ} 17'$	Reef Harbour.
$-55^{\circ} 29'$	$299^{\circ} 03'$	Oct. 1842.	Ross.	$-24^{\circ} 33'$	$-0^{\circ} 11'$	$-24^{\circ} 44'$	At sea†.
$-55^{\circ} 32'$	$299^{\circ} 12'$	Oct. 1842.	Ross.	$-21^{\circ} 46'$	$-0^{\circ} 11'$	$-21^{\circ} 57'$	At sea†.
$-52^{\circ} 12'$	$299^{\circ} 18'$	1834.	FitzRoy.	$-20^{\circ} 24'$	$+0^{\circ} 19'$	$-20^{\circ} 05'$	Stephen's Port, Falklands.
$-51^{\circ} 21'$	$299^{\circ} 21'$	Jan. 1844.	Sullivan.	$-18^{\circ} 29'$	$-0^{\circ} 14'$	$-18^{\circ} 43'$	Hope Harbour, Falklands.
$-51^{\circ} 32'$	$299^{\circ} 31'$	Nov. 1844.	Sullivan.	$-19^{\circ} 07'$	$-0^{\circ} 17'$	$-19^{\circ} 24'$	Whale Cove.
$-52^{\circ} 03'$	$299^{\circ} 44'$	1834.	FitzRoy.	$-20^{\circ} 00'$	$+0^{\circ} 17'$	$-19^{\circ} 43'$	Port Edgar.
$-54^{\circ} 32'$	$299^{\circ} 53'$	Oct. 1842.	Crozier.	$-22^{\circ} 30'$	$-0^{\circ} 09'$	$-22^{\circ} 39'$	At sea†.
$-51^{\circ} 21'$	$299^{\circ} 56'$	1834.	FitzRoy.	$-19^{\circ} 35'$	$+0^{\circ} 17'$	$-19^{\circ} 18'$	Port Egmont, Falklands.
$-51^{\circ} 21'$	$299^{\circ} 56'$	Apr. 1844.	Sullivan.	$-18^{\circ} 47'$	$-0^{\circ} 14'$	$-19^{\circ} 01'$	At sea†.
$-54^{\circ} 53'$	$299^{\circ} 59'$	Oct. 1842.	Ross.	$-21^{\circ} 19'$	$-0^{\circ} 09'$	$-21^{\circ} 28'$	At sea†.
$-52^{\circ} 21'$	$300^{\circ} 15'$	Feb. 1844.	Sullivan.	$-18^{\circ} 35'$	$-0^{\circ} 13'$	$-18^{\circ} 48'$	Owen Road, Falklands.
$-55^{\circ} 58'$	$300^{\circ} 16'$	Apr. 1830.	Erman.	$-19^{\circ} 41'$	$+0^{\circ} 30'$	$-19^{\circ} 11'$	At sea.
$-55^{\circ} 07'$	$300^{\circ} 19'$	Sept. 1842.	Crozier.	$-21^{\circ} 56'$	$-0^{\circ} 09'$	$-22^{\circ} 05'$	At sea†.
$-51^{\circ} 20'$	$300^{\circ} 30'$	Apr. 1844.	Sullivan.	$-18^{\circ} 20'$	$-0^{\circ} 15'$	$-18^{\circ} 35'$	Tamar Harbour, Falklands.
$-52^{\circ} 09'$	$300^{\circ} 35'$	Feb. 1844.	Sullivan.	$-18^{\circ} 18'$	$-0^{\circ} 15'$	$-18^{\circ} 33'$	Bay of Islands.
$-52^{\circ} 21'$	$300^{\circ} 40'$	1834.	FitzRoy.	$-19^{\circ} 50'$	$+0^{\circ} 17'$	$-19^{\circ} 33'$	Bull Road.
$-52^{\circ} 22'$	$300^{\circ} 41'$	1834.	FitzRoy.	$-19^{\circ} 42'$	$+0^{\circ} 17'$	$-19^{\circ} 25'$	Porpoise Point.
$-53^{\circ} 04'$	$300^{\circ} 51'$	Nov. 1842.	Ross.	$-19^{\circ} 57'$	$-0^{\circ} 09'$	$-20^{\circ} 06'$	At sea†.

TABLE XII. (Continued.)

Lat.	Long.	Date.	Observer.	Observed Declination.	Correc- tion for Epoch.	Corrected Declination.	Remarks.
Between the latitudes of -50° and -60° (continued).							
$-52^{\circ} 12'$	$300^{\circ} 56'$	1834.	FitzRoy.	$-19^{\circ} 30'$	$+0^{\circ} 18'$	$-19^{\circ} 12'$	Adventure Sound.
$-51^{\circ} 33'$	$300^{\circ} 57'$	Nov. 1844.	Sulivan.	$-17^{\circ} 56'$	$-0^{\circ} 16'$	$-18^{\circ} 12'$	Port San Carlos, Falklands.
$-52^{\circ} 16'$	$301^{\circ} 06'$	April 1842.	Ross.	$-16^{\circ} 29'$	$-0^{\circ} 09'$	$-16^{\circ} 38'$	At sea.
$-52^{\circ} 14'$	$301^{\circ} 09'$	April 1842.	Crozier.	$-18^{\circ} 25'$	$-0^{\circ} 09'$	$-18^{\circ} 36'$	At sea.
$-54^{\circ} 43'$	$301^{\circ} 12'$	Nov. 1842.	Crozier.	$-21^{\circ} 29'$	$-0^{\circ} 09'$	$-21^{\circ} 38'$	At sea.
$-52^{\circ} 01'$	$301^{\circ} 22'$	Dec. 1843.	Sulivan.	$-18^{\circ} 14'$	$-0^{\circ} 15'$	$-18^{\circ} 29'$	Seal Cove, Falklands.
$-51^{\circ} 48'$	$301^{\circ} 50'$	July 1844.	Sulivan.	$-16^{\circ} 52'$	$-0^{\circ} 18'$	$-17^{\circ} 10'$	Pleasant Island.
$-51^{\circ} 31'$	$301^{\circ} 51'$	Mar. 1843.	Sulivan.	$-17^{\circ} 26'$	$-0^{\circ} 13'$	$-17^{\circ} 39'$	Port Louis, Old Settlement.
$-51^{\circ} 31'$	$301^{\circ} 53'$	Jan. 1844.	Sulivan.	$-17^{\circ} 16'$	$-0^{\circ} 16'$	$-17^{\circ} 32'$	Port Louis.
$-51^{\circ} 22'$	$301^{\circ} 53'$	Aug. 1842.	Ross.	$-17^{\circ} 36'$	$-0^{\circ} 10'$	$-17^{\circ} 46'$	Port Louis.
$-51^{\circ} 32'$	$301^{\circ} 53'$	1834.	FitzRoy.	$-19^{\circ} 00'$	$+0^{\circ} 21'$	$-18^{\circ} 39'$	Port Louis.
$-51^{\circ} 30'$	$302^{\circ} 06'$	Mar. 1833.	FitzRoy.	$-18^{\circ} 43'$	$+0^{\circ} 24'$	$-18^{\circ} 19'$	At sea.
$-51^{\circ} 35'$	$302^{\circ} 10'$	1834.	FitzRoy.	$-19^{\circ} 00'$	$+0^{\circ} 22'$	$-18^{\circ} 38'$	Berkeley Sound, Falklands.
$-51^{\circ} 41'$	$302^{\circ} 10'$	Nov. 1844.	Sulivan.	$-17^{\circ} 18'$	$-0^{\circ} 19'$	$-17^{\circ} 37'$	Stanley Harbour.
$-52^{\circ} 04'$	$302^{\circ} 47'$	Dec. 1842.	Ross.	$-17^{\circ} 49'$	$-0^{\circ} 11'$	$-18^{\circ} 00'$	At sea†.
$-52^{\circ} 54'$	$302^{\circ} 57'$	Sept. 1842.	Crozier.	$-21^{\circ} 38'$	$-0^{\circ} 11'$	$-21^{\circ} 49'$	At sea†.
$-52^{\circ} 46'$	$303^{\circ} 12'$	Dec. 1842.	Crozier.	$-19^{\circ} 18'$	$-0^{\circ} 11'$	$-19^{\circ} 29'$	At sea†.
$-52^{\circ} 50'$	$303^{\circ} 12'$	Dec. 1842.	Ross.	$-18^{\circ} 20'$	$-0^{\circ} 11'$	$-18^{\circ} 31'$	At sea†.
$-56^{\circ} 53'$	$303^{\circ} 21'$	May 1846.	Bérard.	$-18^{\circ} 16'$	$-0^{\circ} 25'$	$-18^{\circ} 31'$	At sea.
$-55^{\circ} 05'$	$303^{\circ} 22'$	Sept. 1830.	Erman.	$-18^{\circ} 58'$	$+0^{\circ} 30'$	$-18^{\circ} 28'$	At sea.
$-53^{\circ} 50'$	$303^{\circ} 49'$	Dec. 1842.	Crozier.	$-19^{\circ} 57'$	$-0^{\circ} 11'$	$-20^{\circ} 08'$	At sea†.
$-53^{\circ} 56'$	$303^{\circ} 52'$	Dec. 1842.	Ross.	$-17^{\circ} 20'$	$-0^{\circ} 11'$	$-17^{\circ} 31'$	At sea†.
$-53^{\circ} 55'$	$304^{\circ} 18'$	Sept. 1842.	Ross.	$-18^{\circ} 12'$	$-0^{\circ} 08'$	$-18^{\circ} 20'$	At sea†.
$-54^{\circ} 05'$	$304^{\circ} 26'$	Sept. 1842.	Crozier.	$-20^{\circ} 49'$	$-0^{\circ} 08'$	$-20^{\circ} 57'$	At sea†.
$-54^{\circ} 12'$	$305^{\circ} 15'$	Sept. 1842.	Crozier.	$-17^{\circ} 03'$	$-0^{\circ} 08'$	$-17^{\circ} 11'$	At sea†.
$-55^{\circ} 45'$	$305^{\circ} 17'$	Dec. 1842.	Crozier.	$-19^{\circ} 43'$	$-0^{\circ} 08'$	$-19^{\circ} 51'$	At sea†.
$-55^{\circ} 46'$	$305^{\circ} 17'$	Dec. 1842.	Ross.	$-18^{\circ} 40'$	$-0^{\circ} 09'$	$-18^{\circ} 49'$	At sea†.
$-55^{\circ} 15'$	$305^{\circ} 39'$	May 1846.	Bérard.	$-17^{\circ} 19'$	$-0^{\circ} 20'$	$-17^{\circ} 39'$	At sea.
$-54^{\circ} 33'$	$306^{\circ} 13'$	May 1846.	Bérard.	$-14^{\circ} 14'$	$-0^{\circ} 20'$	$-14^{\circ} 34'$	At sea.
$-56^{\circ} 36'$	$306^{\circ} 38'$	Dec. 1842.	Ross.	$-17^{\circ} 35'$	$-0^{\circ} 09'$	$-17^{\circ} 44'$	At sea†.
$-56^{\circ} 54'$	$306^{\circ} 41'$	Dec. 1842.	Crozier.	$-19^{\circ} 13'$	$-0^{\circ} 09'$	$-19^{\circ} 22'$	At sea†.
$-58^{\circ} 25'$	$308^{\circ} 00'$	Dec. 1842.	Crozier.	$-17^{\circ} 44'$	$-0^{\circ} 09'$	$-17^{\circ} 53'$	At sea†.
$-58^{\circ} 29'$	$308^{\circ} 13'$	Dec. 1842.	Ross.	$-17^{\circ} 45'$	$-0^{\circ} 09'$	$-17^{\circ} 54'$	At sea†.
$-59^{\circ} 28'$	$308^{\circ} 20'$	Dec. 1842.	Crozier.	$-21^{\circ} 05'$	$-0^{\circ} 09'$	$-21^{\circ} 14'$	At sea†.
$-59^{\circ} 54'$	$308^{\circ} 28'$	Dec. 1842.	Ross.	$-17^{\circ} 49'$	$-0^{\circ} 09'$	$-17^{\circ} 58'$	At sea†.
$-52^{\circ} 52'$	$309^{\circ} 34'$	May 1846.	Bérard.	$-14^{\circ} 02'$	$-0^{\circ} 20'$	$-14^{\circ} 22'$	At sea.
$-57^{\circ} 30'$	$351^{\circ} 40'$	Mar. 1843.	Crozier.	$+10^{\circ} 29'$	$-0^{\circ} 25'$	$+10^{\circ} 04'$	At sea†.
$-57^{\circ} 33'$	$352^{\circ} 04'$	Mar. 1843.	Ross.	$12^{\circ} 11'$	$-0^{\circ} 25'$	$11^{\circ} 46'$	At sea†.
$-57^{\circ} 16'$	$352^{\circ} 52'$	Mar. 1843.	Crozier.	$11^{\circ} 11'$	$0^{\circ} 25'$	$10^{\circ} 46'$	At sea†.
$-57^{\circ} 06'$	$352^{\circ} 53'$	Mar. 1843.	Ross.	$13^{\circ} 06'$	$-0^{\circ} 25'$	$12^{\circ} 41'$	At sea†.
$-56^{\circ} 12'$	$354^{\circ} 46'$	Mar. 1843.	Crozier.	$12^{\circ} 05'$	$-0^{\circ} 25'$	$11^{\circ} 40'$	At sea†.
$-56^{\circ} 15'$	$354^{\circ} 56'$	Mar. 1843.	Ross.	$13^{\circ} 13'$	$-0^{\circ} 25'$	$12^{\circ} 48'$	At sea†.
$-54^{\circ} 11'$	$359^{\circ} 08'$	Mar. 1843.	Ross.	$16^{\circ} 58'$	$-0^{\circ} 25'$	$16^{\circ} 33'$	At sea†.
$-54^{\circ} 18'$	$359^{\circ} 38'$	Mar. 1843.	Crozier.	$14^{\circ} 39'$	$-0^{\circ} 25'$	$14^{\circ} 14'$	At sea.
$-59^{\circ} 02'$	$4^{\circ} 09'$	Jan. 1845.	Moore and Clerk.	$17^{\circ} 30'$	$-0^{\circ} 45'$	$16^{\circ} 45'$	At sea†.
$-55^{\circ} 29'$	$5^{\circ} 54'$	Jan. 1845.	Moore and Clerk.	$21^{\circ} 23'$	$-0^{\circ} 45'$	$20^{\circ} 38'$	At sea†.
$-53^{\circ} 52'$	$6^{\circ} 12'$	Jan. 1845.	Moore and Clerk.	$21^{\circ} 24'$	$-0^{\circ} 45'$	$20^{\circ} 39'$	At sea†.
$-52^{\circ} 56'$	$7^{\circ} 53'$	Jan. 1845.	Moore and Clerk.	$23^{\circ} 46'$	$-0^{\circ} 45'$	$23^{\circ} 01'$	At sea†.
$-51^{\circ} 47'$	$9^{\circ} 34'$	Jan. 1845.	Moore and Clerk.	$23^{\circ} 37'$	$-0^{\circ} 45'$	$22^{\circ} 52'$	At sea†.
$-50^{\circ} 45'$	$10^{\circ} 18'$	Jan. 1845.	Moore and Clerk.	$23^{\circ} 55'$	$-0^{\circ} 45'$	$23^{\circ} 10'$	At sea†.
Between the latitudes of -60° and -70° .							
$-64^{\circ} 40'$	$302^{\circ} 07'$	Jan. 1843.	Crozier.	$-24^{\circ} 07'$	$0^{\circ} 00'$	$-24^{\circ} 07'$	At sea†.
$-64^{\circ} 39'$	$302^{\circ} 36'$	Jan. 1843.	Ross.	$-22^{\circ} 14'$	$0^{\circ} 00'$	$-22^{\circ} 14'$	At sea†.

TABLE XII. (Continued.)

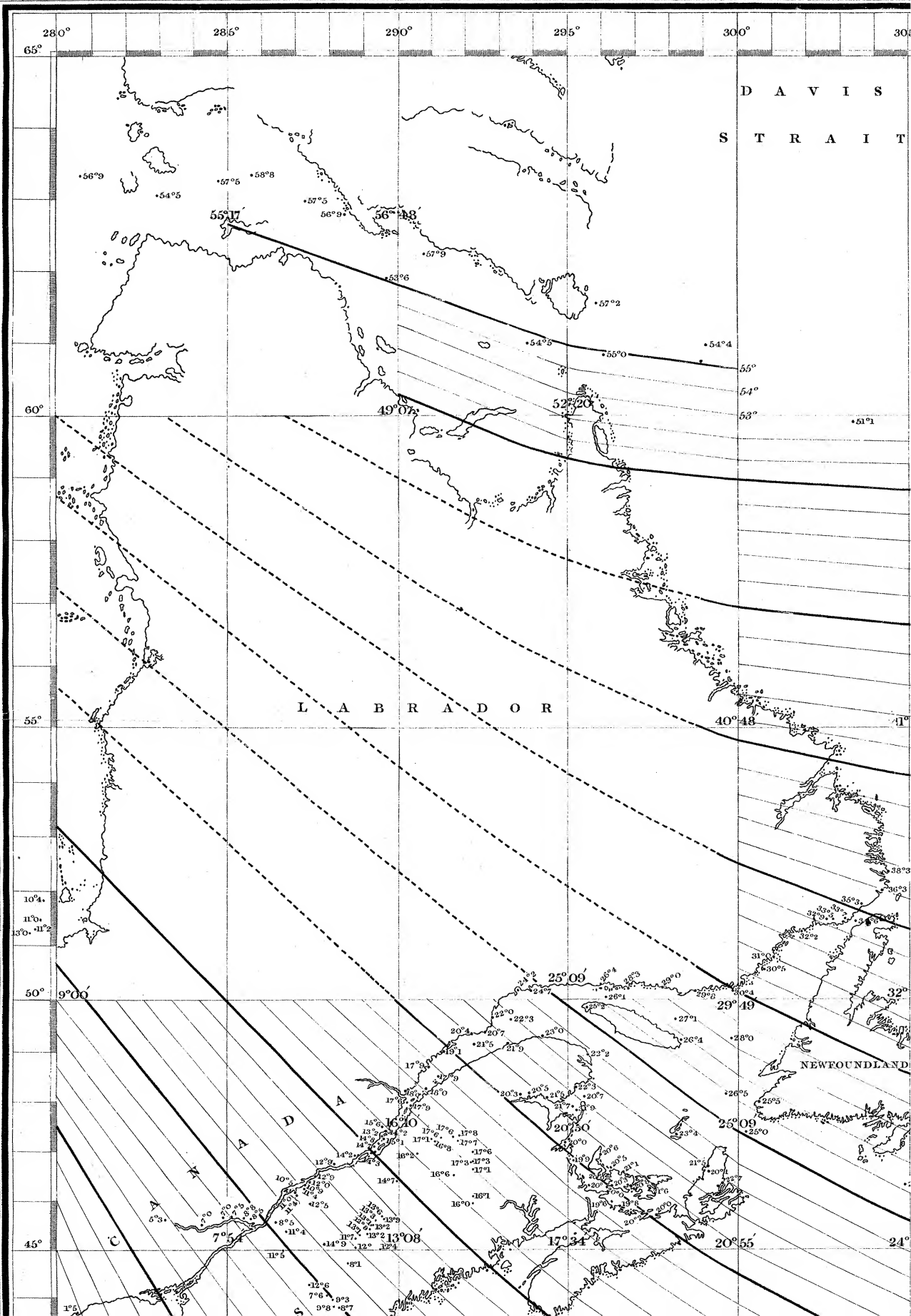
Lat.	Long.	Date.	Observer.	Observed Declination.	Correc- tion for Epoch.	Corrected Declina- tion.	Remarks.
Between the latitudes of -60° and -70° (continued).							
$-64^{\circ} 40'$	$302^{\circ} 40'$	Jan. 1843.	Crozier.	$-24^{\circ} 05'$	$0^{\circ} 00'$	$-24^{\circ} 05'$	At sea†.
$-64^{\circ} 38'$	$302^{\circ} 49'$	Jan. 1843.	Ross.	$-23^{\circ} 03'$	$0^{\circ} 00'$	$-23^{\circ} 03'$	At sea†.
$-64^{\circ} 41'$	$302^{\circ} 52'$	Jan. 1843.	Crozier.	$-23^{\circ} 52'$	$0^{\circ} 00'$	$-23^{\circ} 52'$	At sea†.
$-64^{\circ} 32'$	$302^{\circ} 55'$	Jan. 1843.	Crozier.	$-23^{\circ} 38'$	$0^{\circ} 00'$	$-23^{\circ} 38'$	At sea†.
$-64^{\circ} 19'$	$303^{\circ} 03'$	Jan. 1843.	Ross.	$-21^{\circ} 53'$	$0^{\circ} 00'$	$-21^{\circ} 53'$	At sea†.
$-64^{\circ} 44'$	$303^{\circ} 10'$	Jan. 1843.	Ross.	$-21^{\circ} 13'$	$0^{\circ} 00'$	$-21^{\circ} 13'$	At sea†.
$-64^{\circ} 44'$	$303^{\circ} 10'$	Jan. 1843.	Ross.	$-21^{\circ} 48'$	$0^{\circ} 00'$	$-21^{\circ} 48'$	At sea†.
$-64^{\circ} 20'$	$303^{\circ} 12'$	Jan. 1843.	Crozier.	$-23^{\circ} 45'$	$0^{\circ} 00'$	$-23^{\circ} 45'$	At sea†.
$-64^{\circ} 38'$	$303^{\circ} 30'$	Jan. 1843.	Crozier.	$-23^{\circ} 05'$	$0^{\circ} 00'$	$-23^{\circ} 05'$	At sea†.
$-64^{\circ} 31'$	$303^{\circ} 38'$	Jan. 1843.	Ross.	$-22^{\circ} 53'$	$0^{\circ} 00'$	$-22^{\circ} 53'$	At sea†.
$-64^{\circ} 05'$	$303^{\circ} 47'$	Jan. 1843.	Ross.	$-22^{\circ} 05'$	$0^{\circ} 00'$	$-22^{\circ} 05'$	At sea†.
$-64^{\circ} 15'$	$303^{\circ} 49'$	Jan. 1843.	Ross.	$-21^{\circ} 07'$	$0^{\circ} 00'$	$-21^{\circ} 07'$	At sea†.
$-64^{\circ} 11'$	$303^{\circ} 50'$	Jan. 1843.	Crozier.	$-22^{\circ} 43'$	$0^{\circ} 00'$	$-22^{\circ} 43'$	At sea†.
$-64^{\circ} 26'$	$303^{\circ} 52'$	Jan. 1843.	Ross.	$-22^{\circ} 44'$	$0^{\circ} 00'$	$-22^{\circ} 44'$	At sea†.
$-64^{\circ} 05'$	$303^{\circ} 55'$	Jan. 1843.	Crozier.	$-22^{\circ} 21'$	$0^{\circ} 00'$	$-22^{\circ} 21'$	At sea†.
$-64^{\circ} 23'$	$304^{\circ} 00'$	Jan. 1843.	Ross.	$-22^{\circ} 43'$	$+0^{\circ} 03'$	$-22^{\circ} 40'$	At sea†.
$-64^{\circ} 06'$	$304^{\circ} 03'$	Jan. 1843.	Ross.	$-21^{\circ} 10'$	$+0^{\circ} 03'$	$-21^{\circ} 07'$	At sea†.
$-64^{\circ} 16'$	$304^{\circ} 05'$	Jan. 1843.	Ross.	$-22^{\circ} 25'$	$+0^{\circ} 03'$	$-22^{\circ} 22'$	At sea†.
$-64^{\circ} 33'$	$304^{\circ} 05'$	Jan. 1843.	Crozier.	$-22^{\circ} 23'$	$+0^{\circ} 03'$	$-22^{\circ} 20'$	At sea†.
$-64^{\circ} 24'$	$304^{\circ} 10'$	Jan. 1843.	Ross.	$-21^{\circ} 10'$	$+0^{\circ} 03'$	$-21^{\circ} 07'$	At sea†.
$-64^{\circ} 04'$	$304^{\circ} 11'$	Jan. 1843.	Crozier.	$-22^{\circ} 40'$	$+0^{\circ} 03'$	$-22^{\circ} 37'$	At sea†.
$-64^{\circ} 17'$	$304^{\circ} 17'$	Jan. 1843.	Crozier.	$-22^{\circ} 22'$	$+0^{\circ} 03'$	$-22^{\circ} 19'$	At sea†.
$-64^{\circ} 04'$	$304^{\circ} 18'$	Jan. 1843.	Ross.	$-21^{\circ} 02'$	$+0^{\circ} 03'$	$-20^{\circ} 59'$	At sea†.
$-64^{\circ} 19'$	$304^{\circ} 20'$	Jan. 1843.	Ross.	$-21^{\circ} 36'$	$+0^{\circ} 03'$	$-21^{\circ} 33'$	At sea†.
$-64^{\circ} 00'$	$304^{\circ} 22'$	Jan. 1843.	Crozier.	$-22^{\circ} 54'$	$+0^{\circ} 03'$	$-22^{\circ} 51'$	At sea†.
$-63^{\circ} 47'$	$304^{\circ} 31'$	Dec. 1842.	Crozier.	$-22^{\circ} 19'$	$+0^{\circ} 03'$	$-22^{\circ} 16'$	At sea†.
$-64^{\circ} 17'$	$304^{\circ} 42'$	Jan. 1843.	Crozier.	$-21^{\circ} 51'$	$+0^{\circ} 03'$	$-21^{\circ} 48'$	At sea†.
$-64^{\circ} 01'$	$305^{\circ} 00'$	Feb. 1843.	Ross.	$-21^{\circ} 01'$	$+0^{\circ} 03'$	$-20^{\circ} 58'$	At sea†.
$-63^{\circ} 49'$	$305^{\circ} 00'$	Dec. 1842.	Ross.	$-22^{\circ} 27'$	$+0^{\circ} 03'$	$-22^{\circ} 24'$	At sea†.
$-64^{\circ} 03'$	$305^{\circ} 18'$	Jan. 1843.	Crozier.	$-22^{\circ} 02'$	$+0^{\circ} 03'$	$-21^{\circ} 59'$	At sea†.
$-64^{\circ} 12'$	$305^{\circ} 20'$	Feb. 1843.	Crozier.	$-21^{\circ} 51'$	$+0^{\circ} 03'$	$-21^{\circ} 48'$	At sea†.
$-62^{\circ} 54'$	$305^{\circ} 41'$	Dec. 1842.	Ross.	$-20^{\circ} 52'$	$-0^{\circ} 02'$	$-20^{\circ} 54'$	At sea†.
$-64^{\circ} 20'$	$306^{\circ} 00'$	Jan. 1843.	Crozier.	$-21^{\circ} 40'$	$+0^{\circ} 02'$	$-21^{\circ} 38'$	At sea†.
$-62^{\circ} 39'$	$306^{\circ} 12'$	Dec. 1842.	Crozier.	$-21^{\circ} 30'$	$-0^{\circ} 02'$	$-21^{\circ} 32'$	At sea†.
$-62^{\circ} 00'$	$307^{\circ} 52'$	Dec. 1842.	Crozier.	$-20^{\circ} 25'$	$-0^{\circ} 02'$	$-20^{\circ} 27'$	At sea†.
$-62^{\circ} 18'$	$308^{\circ} 03'$	Dec. 1842.	Ross.	$-19^{\circ} 03'$	$-0^{\circ} 02'$	$-19^{\circ} 05'$	At sea†.
$-62^{\circ} 20'$	$308^{\circ} 12'$	Dec. 1842.	Crozier.	$-21^{\circ} 21'$	$-0^{\circ} 02'$	$-21^{\circ} 23'$	At sea†.
$-64^{\circ} 10'$	$309^{\circ} 30'$	Feb. 1843.	Crozier.	$-19^{\circ} 14'$	$-0^{\circ} 02'$	$-19^{\circ} 16'$	At sea†.
$-64^{\circ} 41'$	$316^{\circ} 00'$	Feb. 1843.	Crozier.	$-15^{\circ} 43'$	$-0^{\circ} 06'$	$-15^{\circ} 49'$	At sea†.
$-64^{\circ} 36'$	$316^{\circ} 05'$	Feb. 1843.	Ross.	$-13^{\circ} 41'$	$-0^{\circ} 06'$	$-13^{\circ} 47'$	At sea†.
$-64^{\circ} 50'$	$316^{\circ} 40'$	Feb. 1843.	Crozier.	$-15^{\circ} 01'$	$-0^{\circ} 06'$	$-15^{\circ} 07'$	At sea†.
$-64^{\circ} 38'$	$316^{\circ} 57'$	Feb. 1843.	Ross.	$-13^{\circ} 32'$	$-0^{\circ} 06'$	$-13^{\circ} 38'$	At sea†.
$-64^{\circ} 04'$	$318^{\circ} 29'$	Feb. 1843.	Crozier.	$-13^{\circ} 59'$	$-0^{\circ} 10'$	$-14^{\circ} 09'$	At sea†.
$-65^{\circ} 06'$	$318^{\circ} 57'$	Feb. 1843.	Ross.	$-12^{\circ} 49'$	$-0^{\circ} 10'$	$-12^{\circ} 59'$	At sea†.
$-63^{\circ} 58'$	$321^{\circ} 43'$	Feb. 1843.	Crozier.	$-10^{\circ} 13'$	$-0^{\circ} 16'$	$-10^{\circ} 29'$	At sea†.
$-63^{\circ} 57'$	$322^{\circ} 00'$	Feb. 1843.	Ross.	$-9^{\circ} 11'$	$-0^{\circ} 16'$	$-9^{\circ} 27'$	At sea†.
$-62^{\circ} 38'$	$328^{\circ} 00'$	Feb. 1843.	Crozier.	$-7^{\circ} 30'$	$-0^{\circ} 16'$	$-7^{\circ} 46'$	At sea†.
$-62^{\circ} 41'$	$328^{\circ} 27'$	Feb. 1843.	Ross.	$-6^{\circ} 09'$	$-0^{\circ} 16'$	$-6^{\circ} 25'$	At sea†.
$-62^{\circ} 20'$	$330^{\circ} 30'$	Feb. 1843.	Ross.	$-4^{\circ} 41'$	$-0^{\circ} 16'$	$-4^{\circ} 57'$	At sea†.
$-62^{\circ} 09'$	$332^{\circ} 38'$	Feb. 1843.	Crozier.	$-3^{\circ} 43'$	$-0^{\circ} 16'$	$-3^{\circ} 59'$	At sea†.
$-62^{\circ} 06'$	$333^{\circ} 43'$	Feb. 1843.	Ross.	$-3^{\circ} 48'$	$-0^{\circ} 25'$	$-4^{\circ} 18'$	At sea†.
$-62^{\circ} 00'$	$333^{\circ} 44'$	Feb. 1843.	Crozier.	$-2^{\circ} 42'$	$-0^{\circ} 25'$	$-3^{\circ} 07'$	At sea†.
$-61^{\circ} 55'$	$333^{\circ} 48'$	Feb. 1843.	Ross.	$-3^{\circ} 41'$	$-0^{\circ} 25'$	$-4^{\circ} 06'$	At sea†.
$-61^{\circ} 32'$	$335^{\circ} 33'$	Feb. 1843.	Crozier.	$-0^{\circ} 34'$	$-0^{\circ} 25'$	$-0^{\circ} 59'$	At sea†.
$-61^{\circ} 36'$	$336^{\circ} 20'$	Feb. 1843.	Ross.	$-0^{\circ} 42'$	$-0^{\circ} 25'$	$-1^{\circ} 07'$	At sea†.
$-70^{\circ} 43'$	$343^{\circ} 12'$	Mar. 1843.	Crozier.	$2^{\circ} 01'$	$-0^{\circ} 23'$	$1^{\circ} 38'$	At sea†.

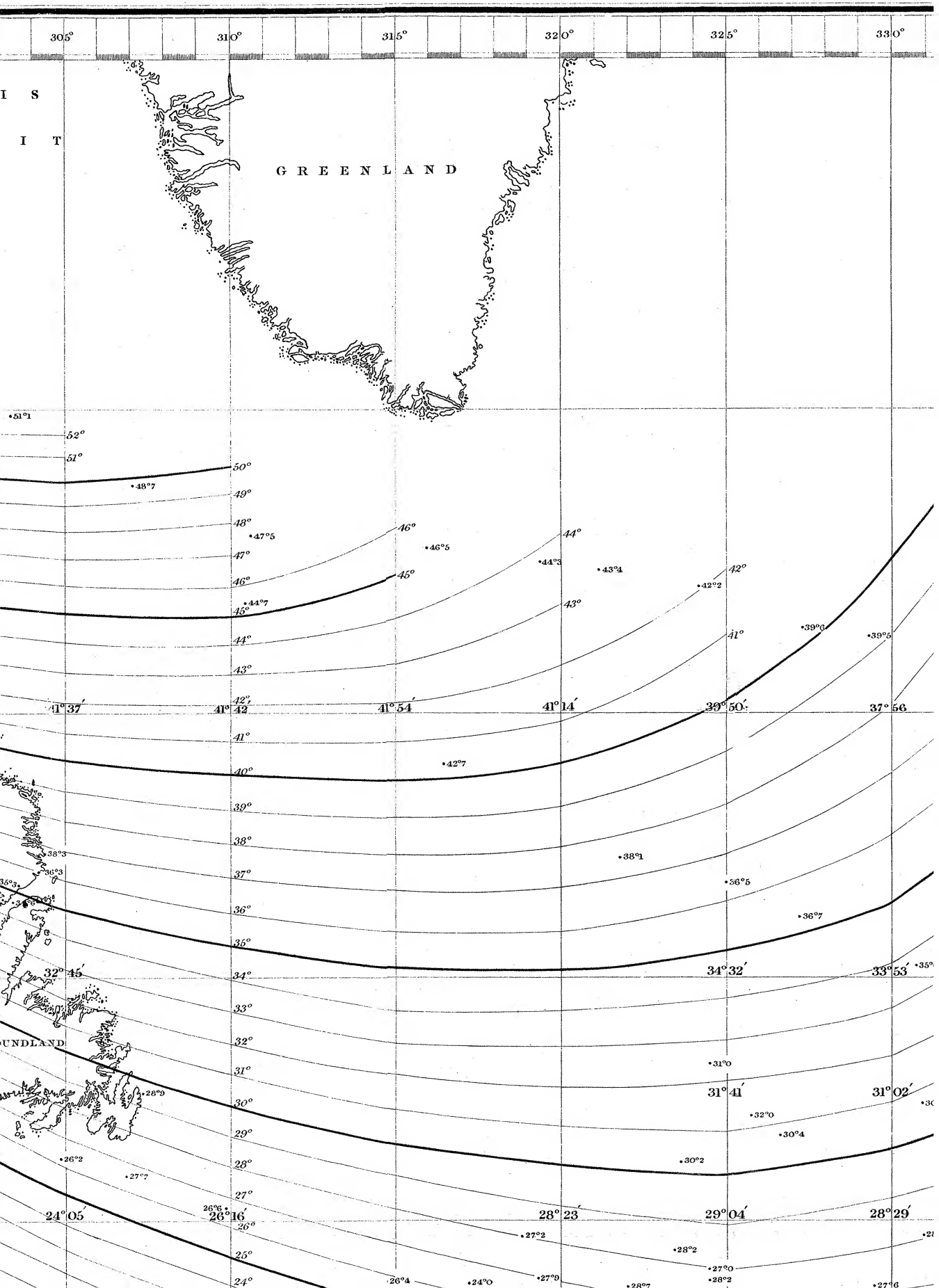
TABLE XII. (Continued.)

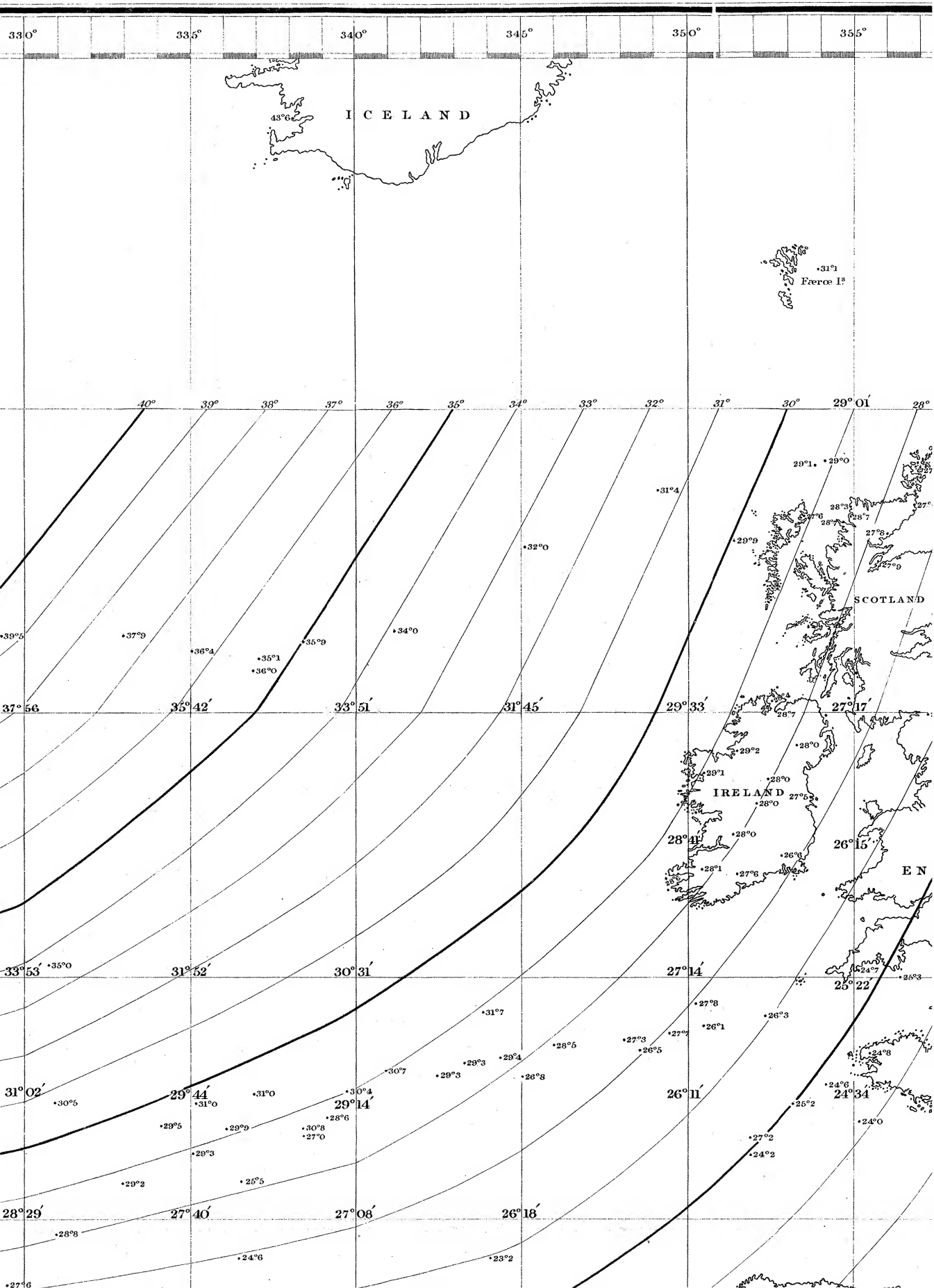
Lat.	Long.	Date.	Observer.	Observed Declina- tion.	Correc- tion for Epoch.	Corrected Declina- tion.	Remarks.
Between the latitudes of -60° and -70° (continued).							
$-70^{\circ} 50'$	$343^{\circ} 34'$	Mar. 1843.	Ross.	$3^{\circ} 03'$	$-0^{\circ} 23'$	$2^{\circ} 40'$	At sea†.
$-62^{\circ} 18'$	$343^{\circ} 44'$	Feb. 1843.	Crozier.	$3^{\circ} 01'$	$-0^{\circ} 25'$	$2^{\circ} 36'$	At sea†.
$-62^{\circ} 24'$	$343^{\circ} 58'$	Feb. 1843.	Crozier.	$5^{\circ} 00'$	$-0^{\circ} 25'$	$4^{\circ} 35'$	At sea†.
$-62^{\circ} 52'$	$344^{\circ} 33'$	Feb. 1843.	Ross.	$4^{\circ} 49'$	$-0^{\circ} 25'$	$4^{\circ} 24'$	At sea†.
$-64^{\circ} 48'$	$345^{\circ} 16'$	Feb. 1843.	Ross.	$5^{\circ} 11'$	$-0^{\circ} 25'$	$4^{\circ} 46'$	At sea†.
$-69^{\circ} 42'$	$345^{\circ} 20'$	Mar. 1843.	Crozier.	$1^{\circ} 35'$	$-0^{\circ} 23'$	$1^{\circ} 12'$	At sea†.
$-69^{\circ} 13'$	$345^{\circ} 55'$	Mar. 1843.	Ross.	$3^{\circ} 25'$	$-0^{\circ} 23'$	$3^{\circ} 02'$	At sea†.
$-64^{\circ} 29'$	$346^{\circ} 02'$	Mar. 1843.	Ross.	$4^{\circ} 19'$	$-0^{\circ} 25'$	$3^{\circ} 54'$	At sea†.
$-64^{\circ} 06'$	$346^{\circ} 15'$	Mar. 1843.	Crozier.	$5^{\circ} 15'$	$-0^{\circ} 25'$	$4^{\circ} 50'$	At sea†.
$-64^{\circ} 14'$	$346^{\circ} 15'$	Feb. 1843.	Crozier.	$5^{\circ} 01'$	$-0^{\circ} 25'$	$4^{\circ} 36'$	At sea†.
$-66^{\circ} 10'$	$346^{\circ} 40'$	Mar. 1843.	Crozier.	$5^{\circ} 25'$	$-0^{\circ} 25'$	$5^{\circ} 00'$	At sea†.
$-68^{\circ} 30'$	$346^{\circ} 50'$	Mar. 1843.	Crozier.	$3^{\circ} 51'$	$-0^{\circ} 25'$	$3^{\circ} 26'$	At sea†.
$-68^{\circ} 10'$	$347^{\circ} 45'$	Mar. 1843.	Crozier.	$5^{\circ} 18'$	$-0^{\circ} 25'$	$4^{\circ} 53'$	At sea†.
$-68^{\circ} 08'$	$348^{\circ} 10'$	Mar. 1843.	Crozier.	$3^{\circ} 48'$	$-0^{\circ} 25'$	$3^{\circ} 23'$	At sea†.
$-61^{\circ} 16'$	$348^{\circ} 56'$	Mar. 1843.	Ross.	$8^{\circ} 49'$	$-0^{\circ} 25'$	$8^{\circ} 24'$	At sea†.
$-61^{\circ} 16'$	$349^{\circ} 00'$	Mar. 1843.	Crozier.	$7^{\circ} 07'$	$-0^{\circ} 25'$	$6^{\circ} 42'$	At sea†.
$-65^{\circ} 01'$	$349^{\circ} 04'$	Feb. 1843.	Crozier.	$6^{\circ} 34'$	$-0^{\circ} 25'$	$6^{\circ} 09'$	At sea†.
$-65^{\circ} 08'$	$349^{\circ} 50'$	Feb. 1843.	Ross.	$7^{\circ} 35'$	$-0^{\circ} 25'$	$7^{\circ} 10'$	At sea†.
$-67^{\circ} 12'$	$350^{\circ} 36'$	Mar. 1843.	Crozier.	$6^{\circ} 43'$	$-0^{\circ} 25'$	$6^{\circ} 18'$	At sea†.
$-66^{\circ} 00'$	$351^{\circ} 00'$	Mar. 1843.	Crozier.	$8^{\circ} 47'$	$-0^{\circ} 25'$	$8^{\circ} 22'$	At sea†.
$-66^{\circ} 40'$	$351^{\circ} 39'$	Mar. 1843.	Ross.	$8^{\circ} 54'$	$-0^{\circ} 25'$	$8^{\circ} 29'$	At sea†.
$-61^{\circ} 12'$	$9^{\circ} 30'$	Feb. 1845.	Moore and Clerk.	$20^{\circ} 29'$	$-0^{\circ} 40'$	$19^{\circ} 49'$	At sea†.
$-62^{\circ} 03'$	$12^{\circ} 45'$	Feb. 1845.	Moore and Clerk.	$22^{\circ} 07'$	$-0^{\circ} 40'$	$21^{\circ} 27'$	At sea†.
$-61^{\circ} 54'$	$16^{\circ} 40'$	Feb. 1845.	Moore and Clerk.	$23^{\circ} 11'$	$-0^{\circ} 40'$	$22^{\circ} 31'$	At sea†.
$-61^{\circ} 49'$	$19^{\circ} 13'$	Feb. 1845.	Moore and Clerk.	$26^{\circ} 16'$	$-0^{\circ} 40'$	$25^{\circ} 36'$	At sea†.
$-62^{\circ} 05'$	$20^{\circ} 58'$	Feb. 1845.	Moore and Clerk.	$28^{\circ} 05'$	$-0^{\circ} 40'$	$27^{\circ} 25'$	At sea†.

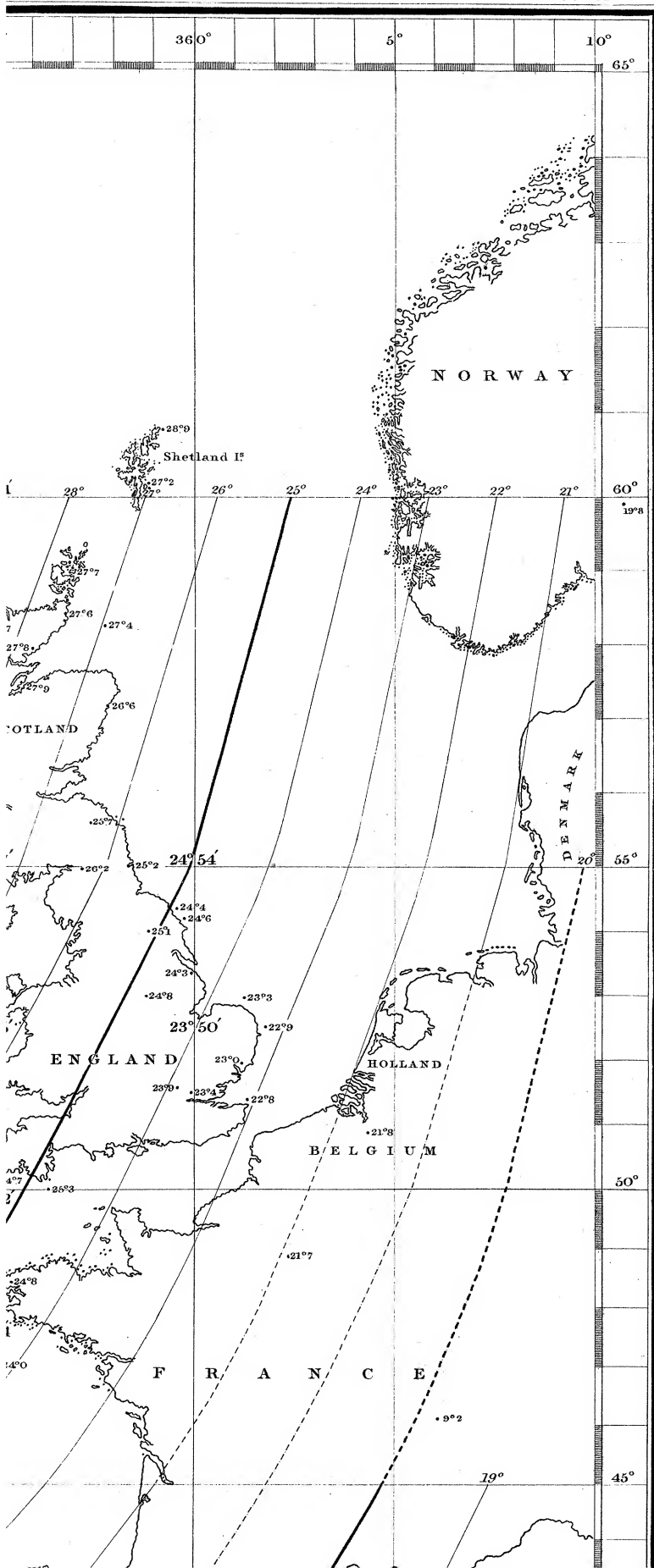
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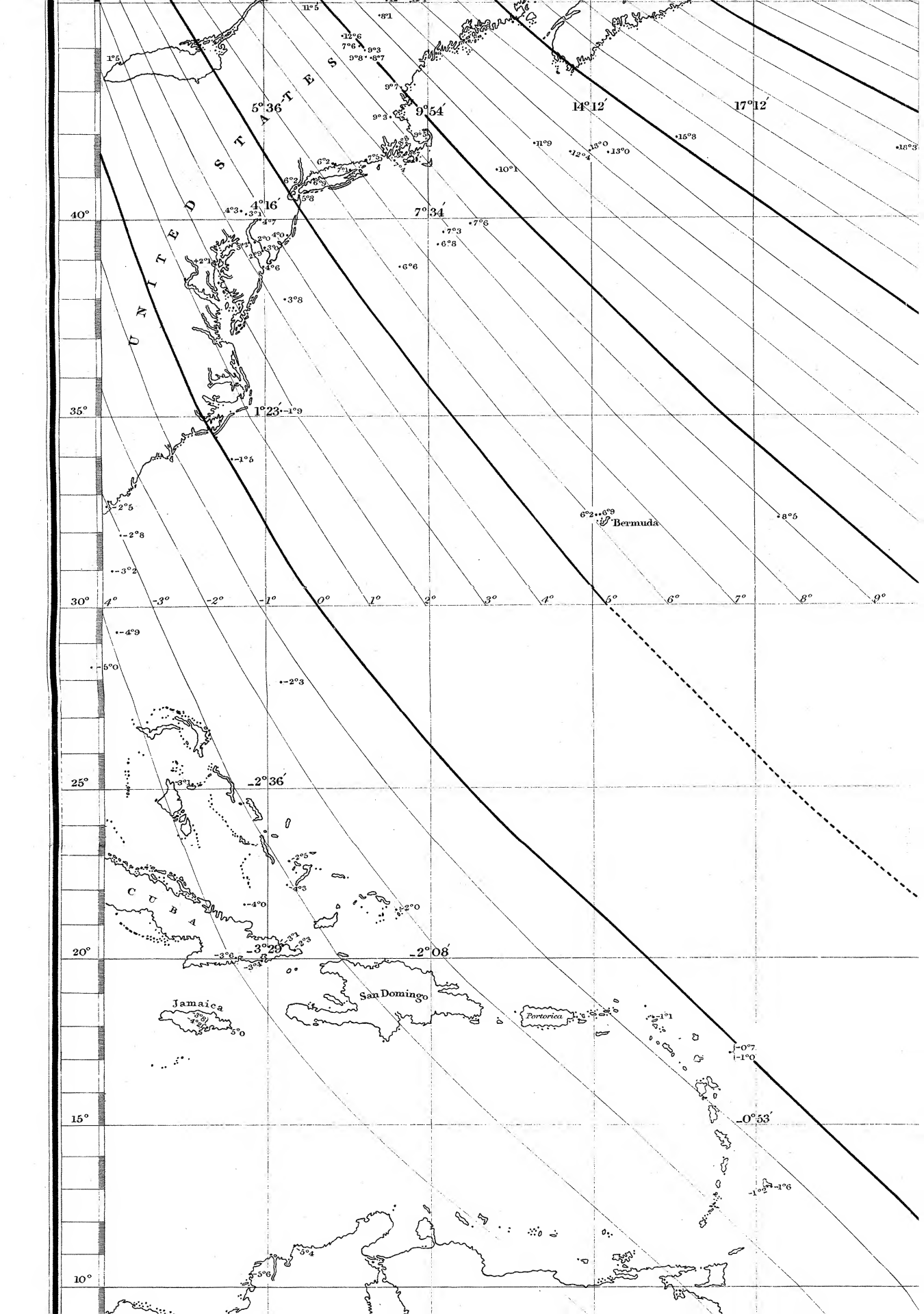
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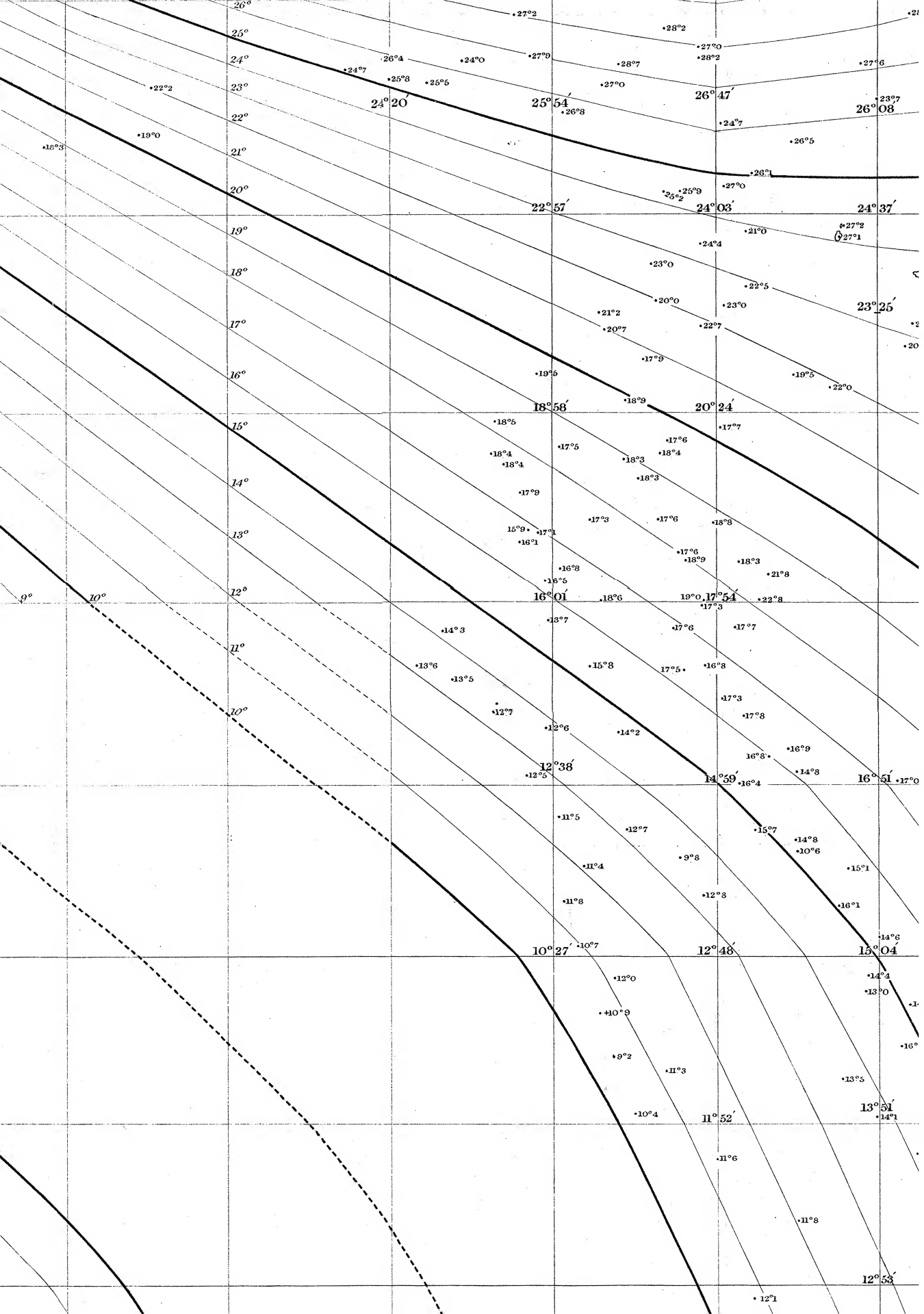


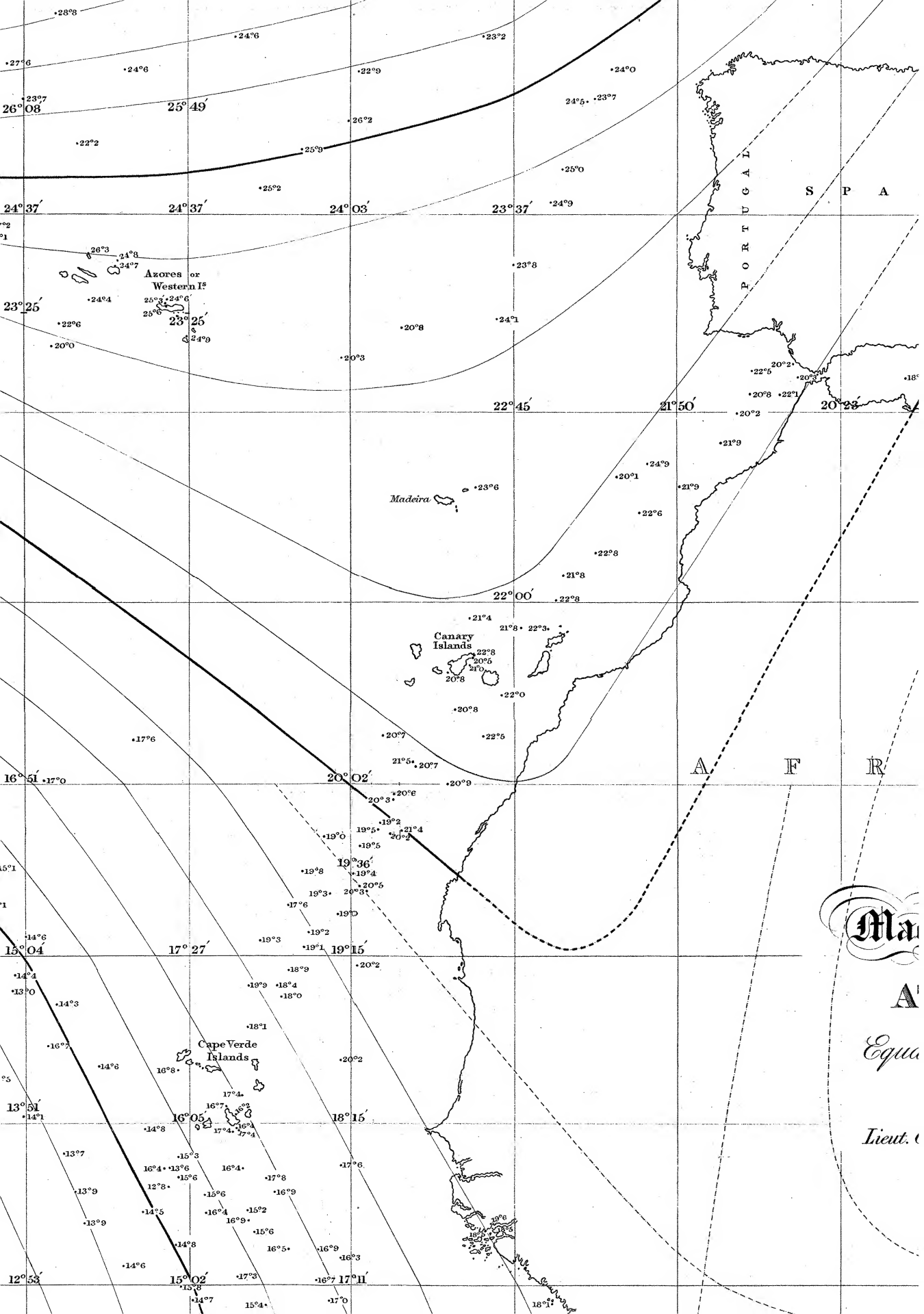


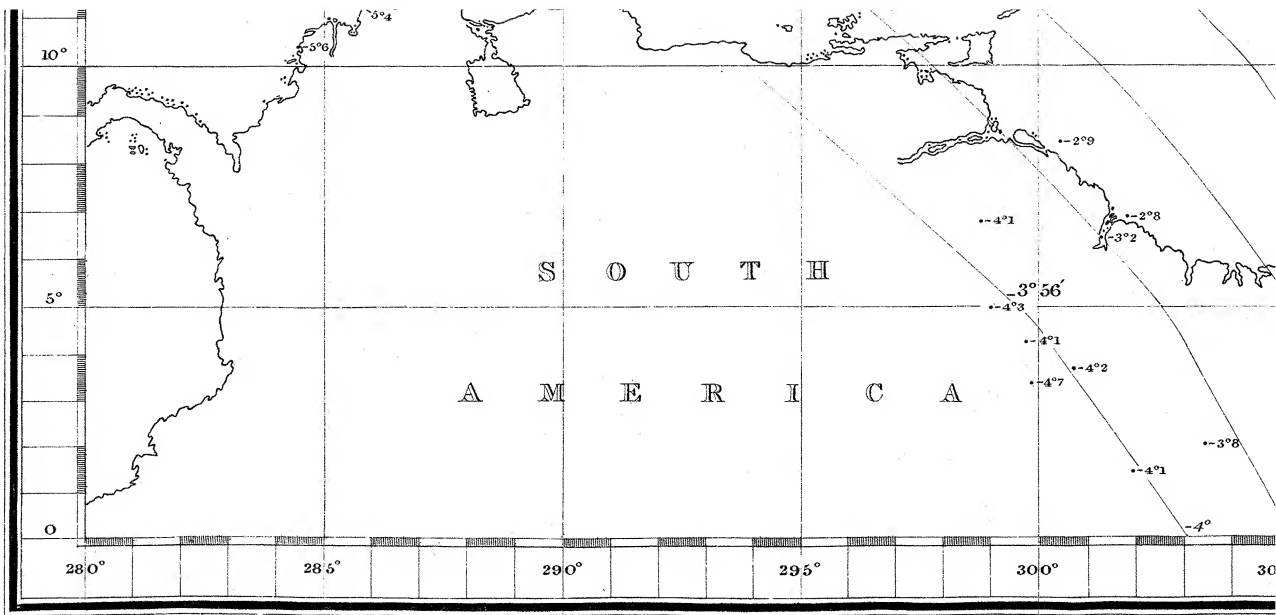


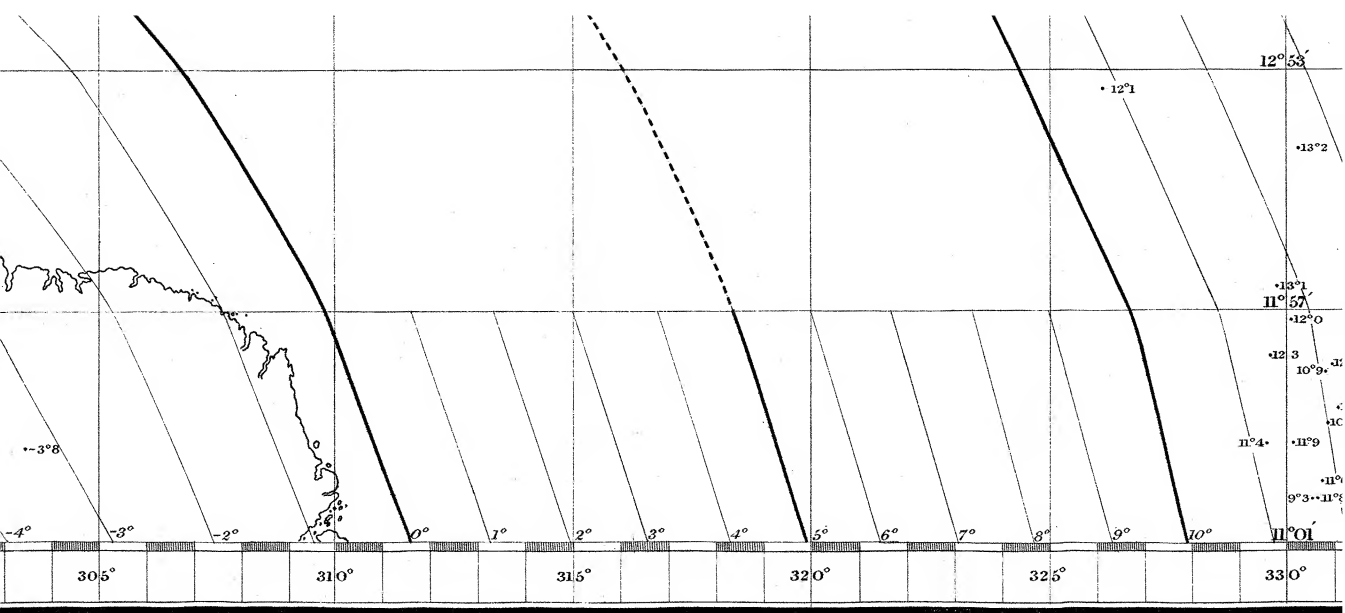


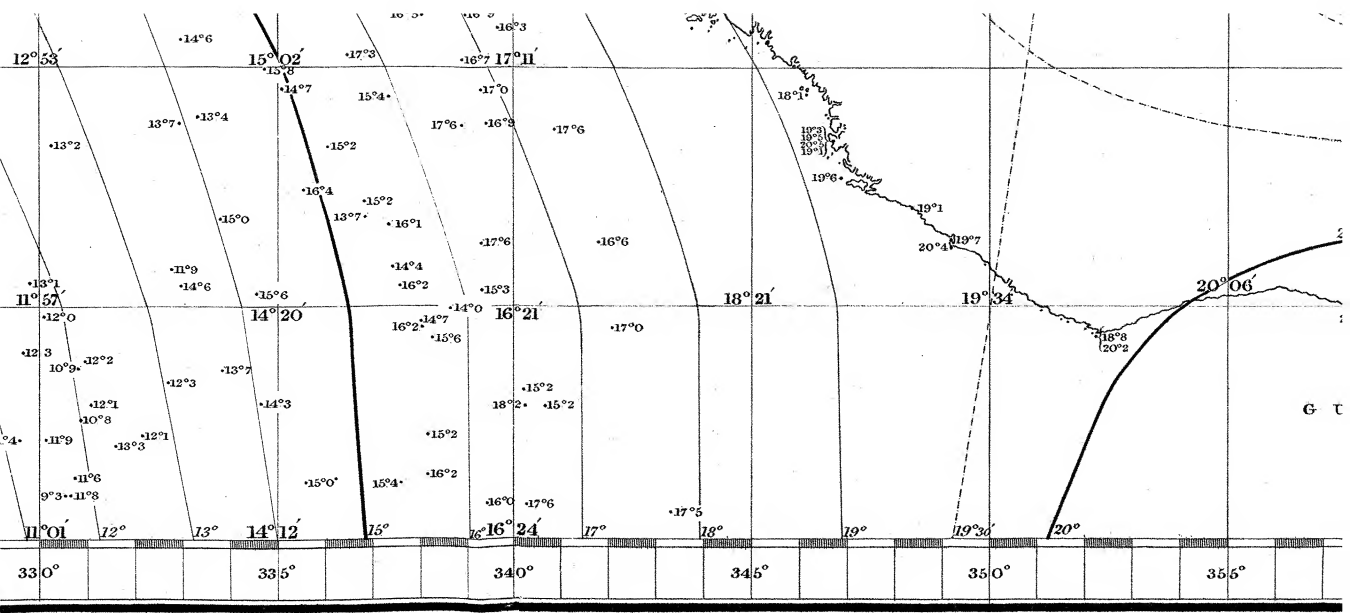


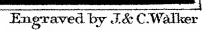




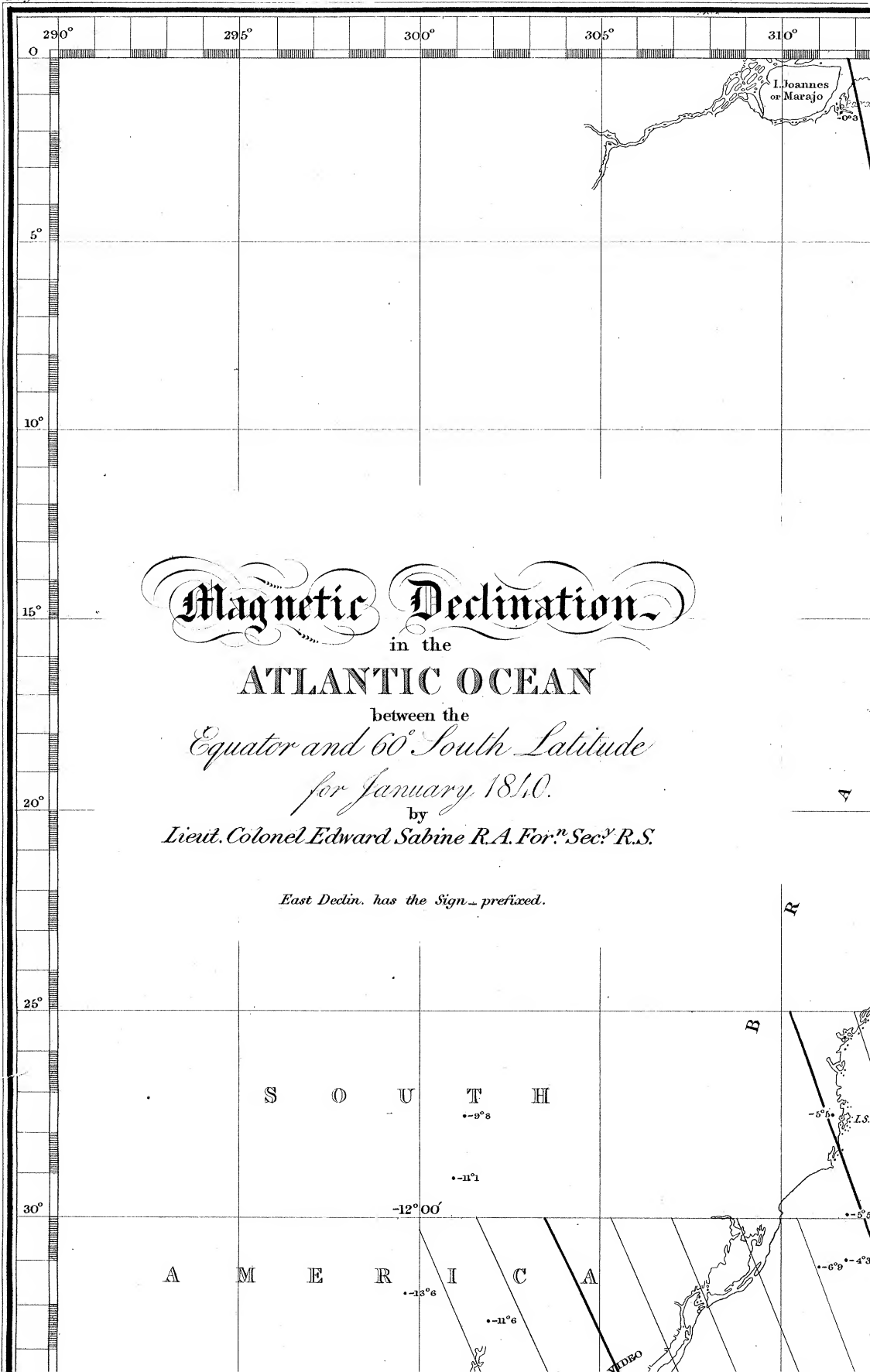


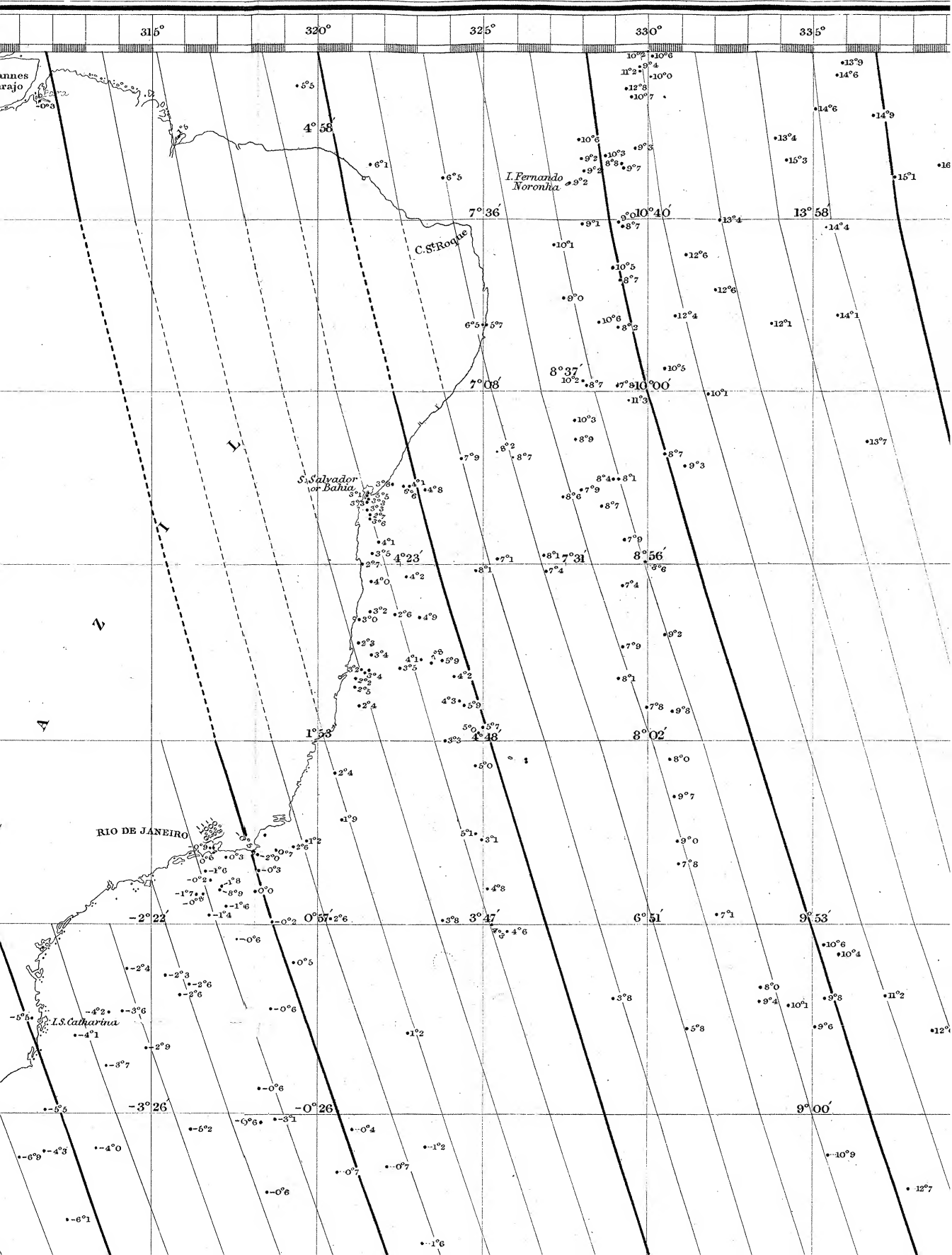


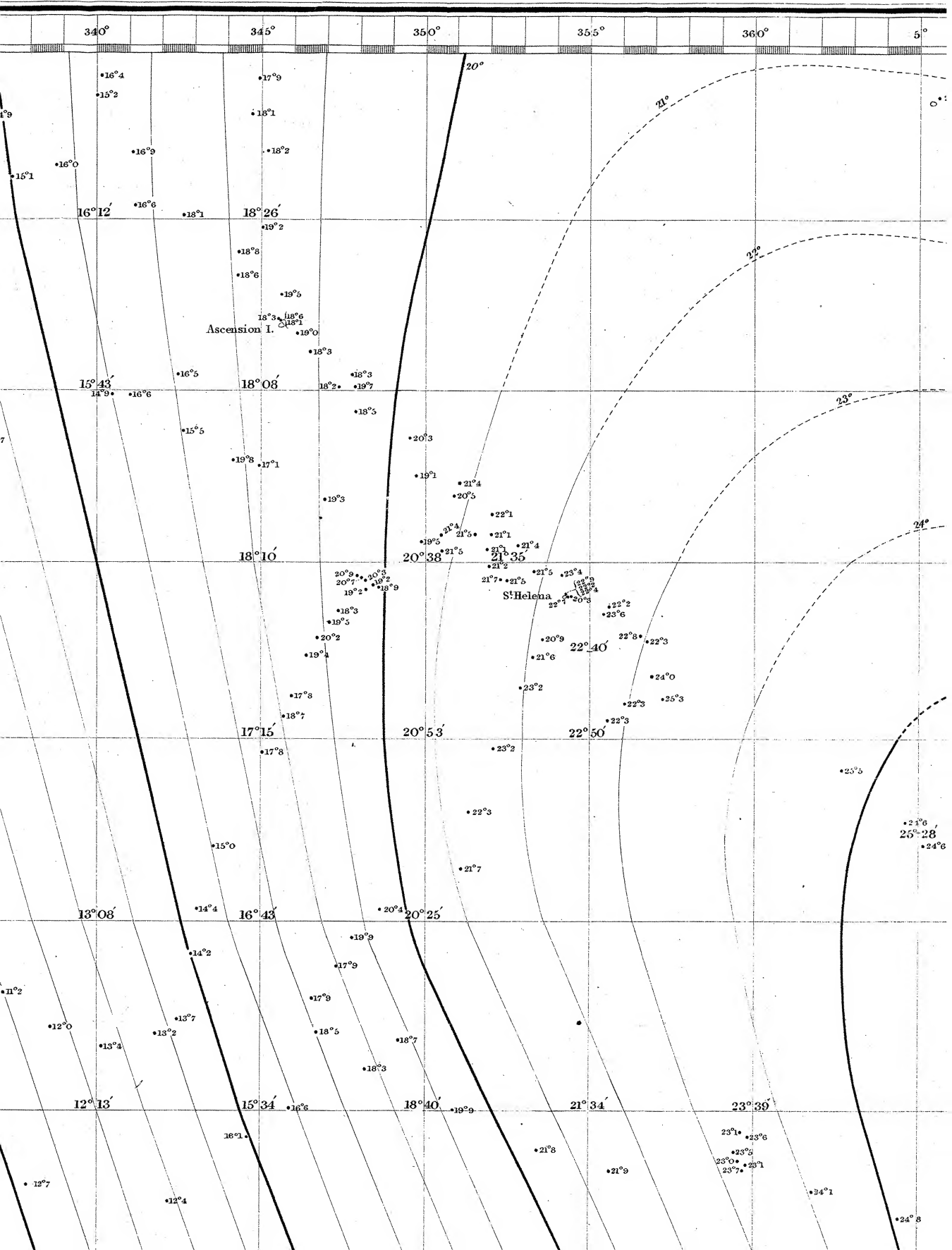


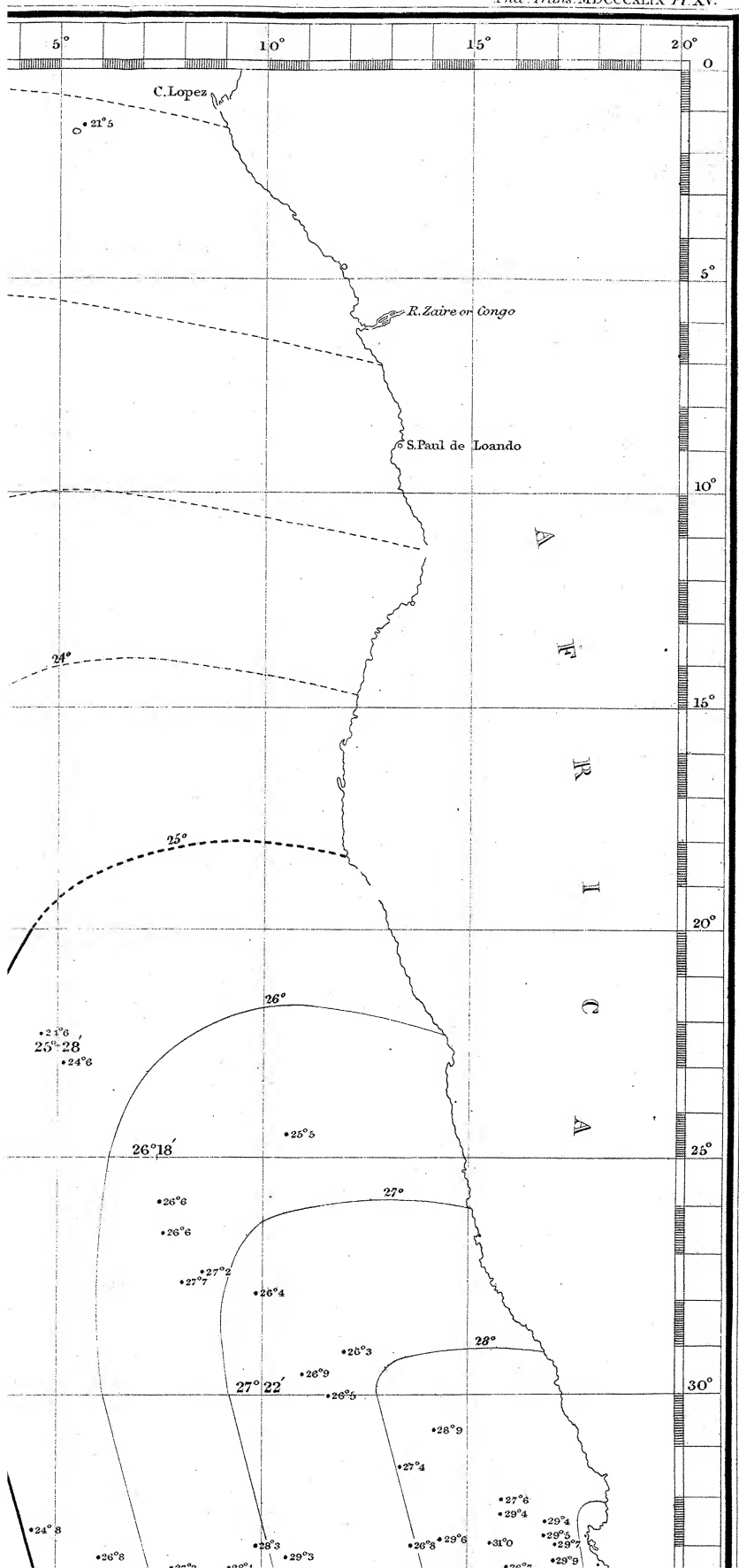


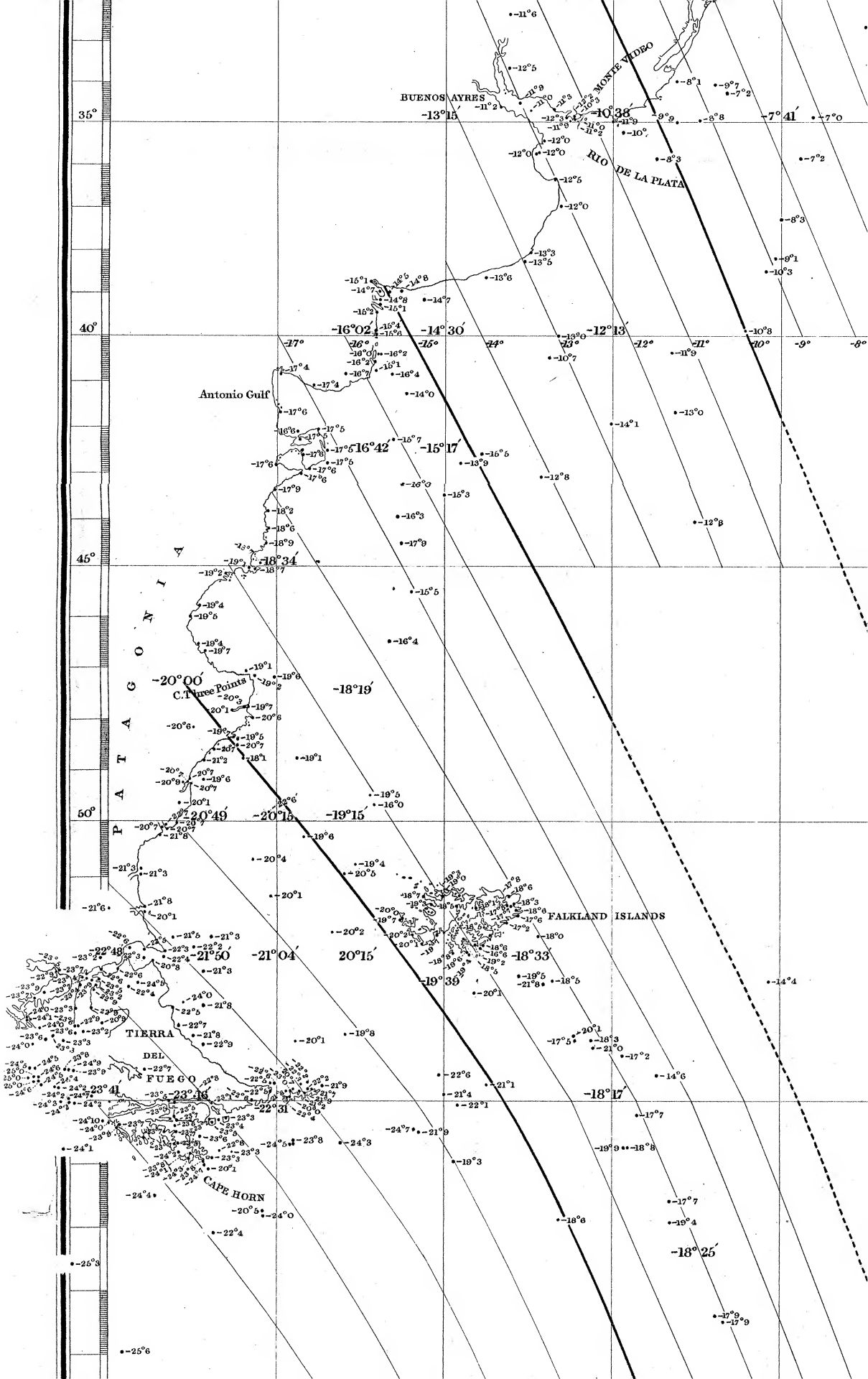
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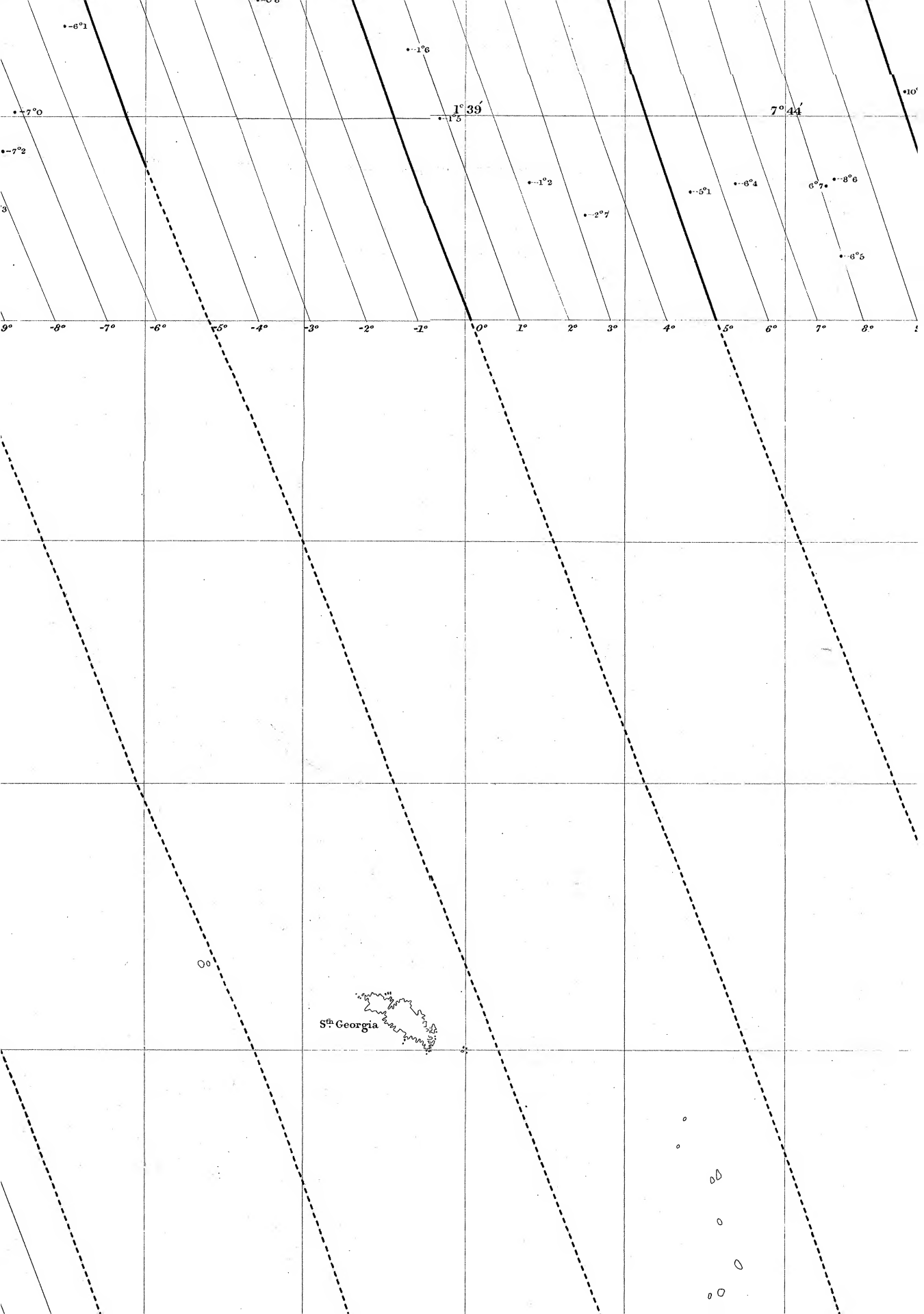


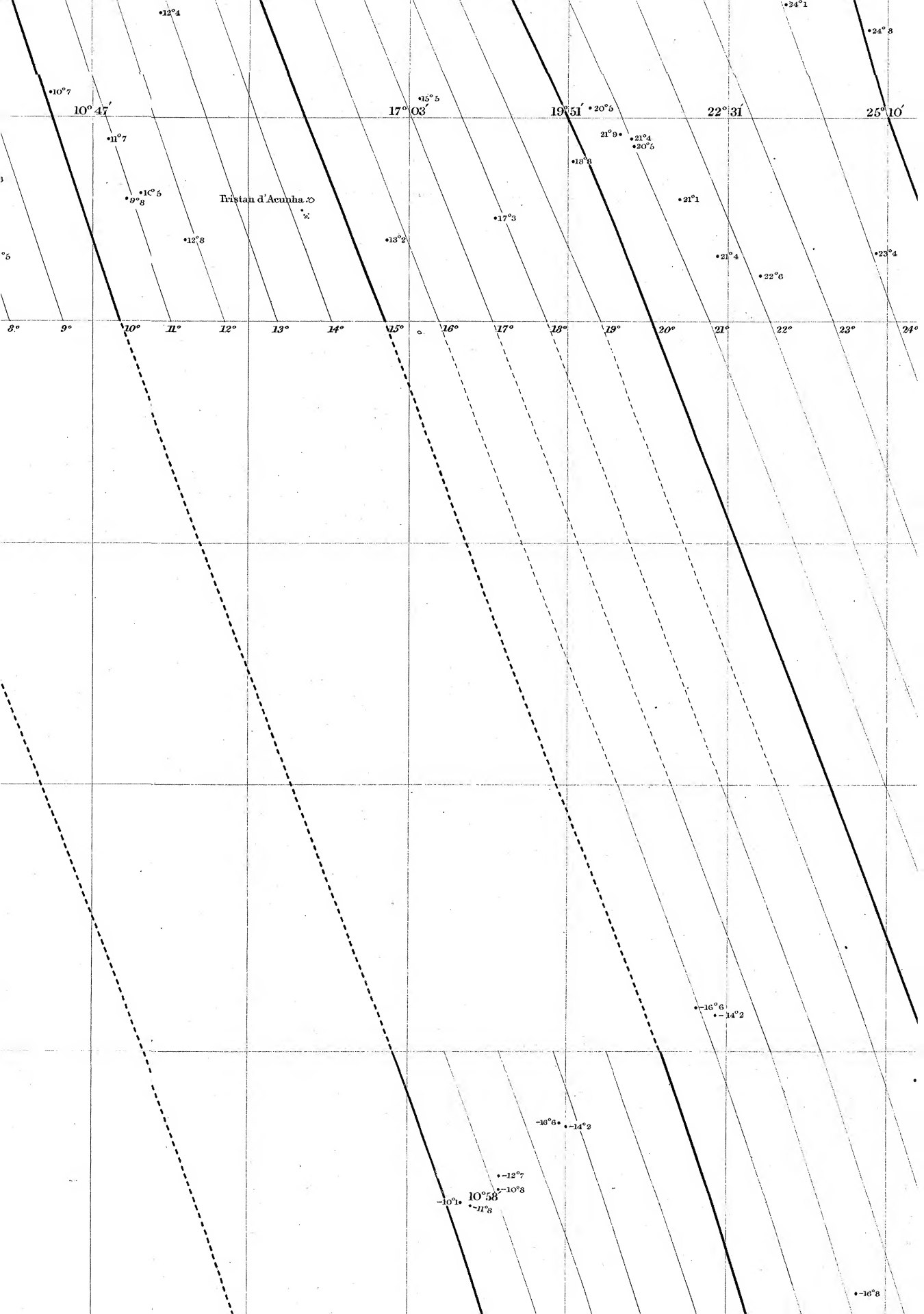


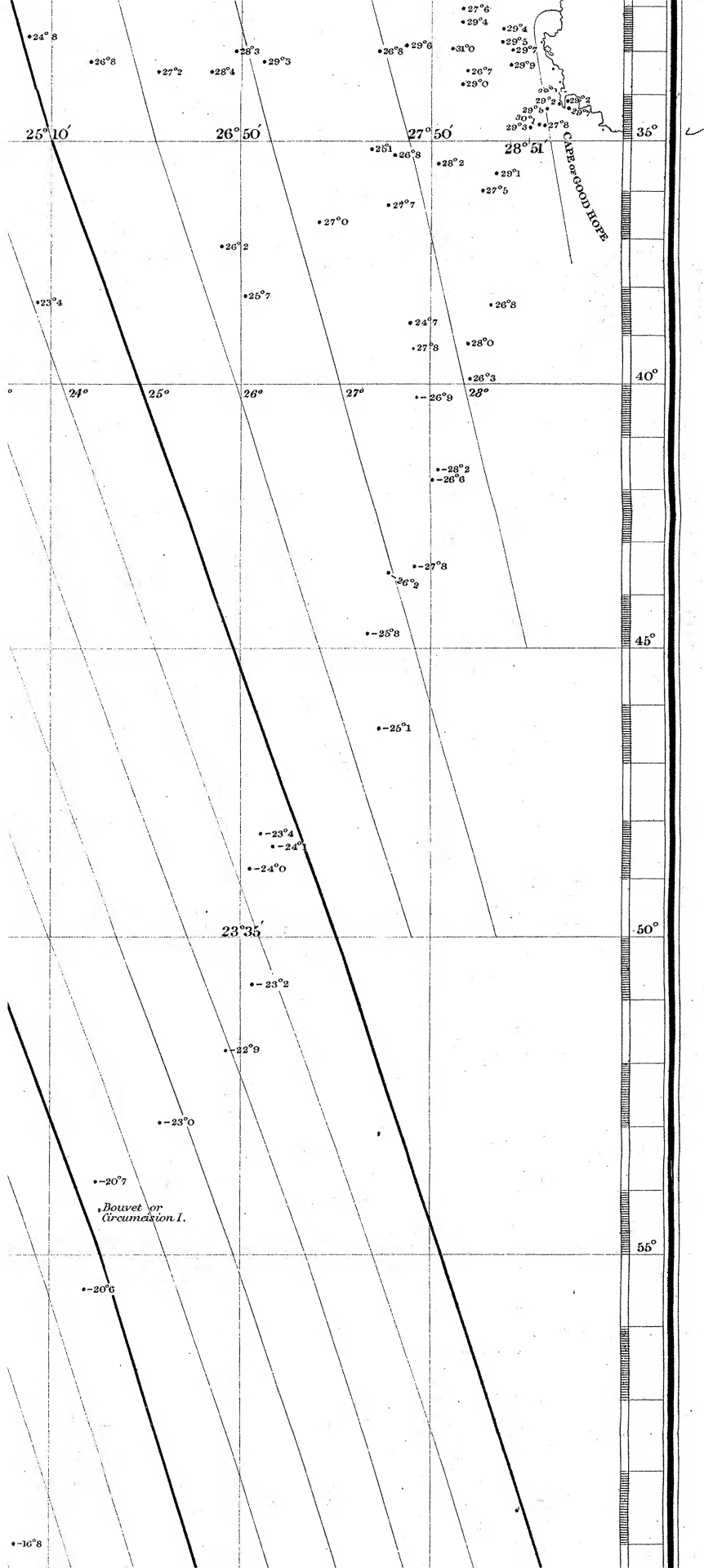


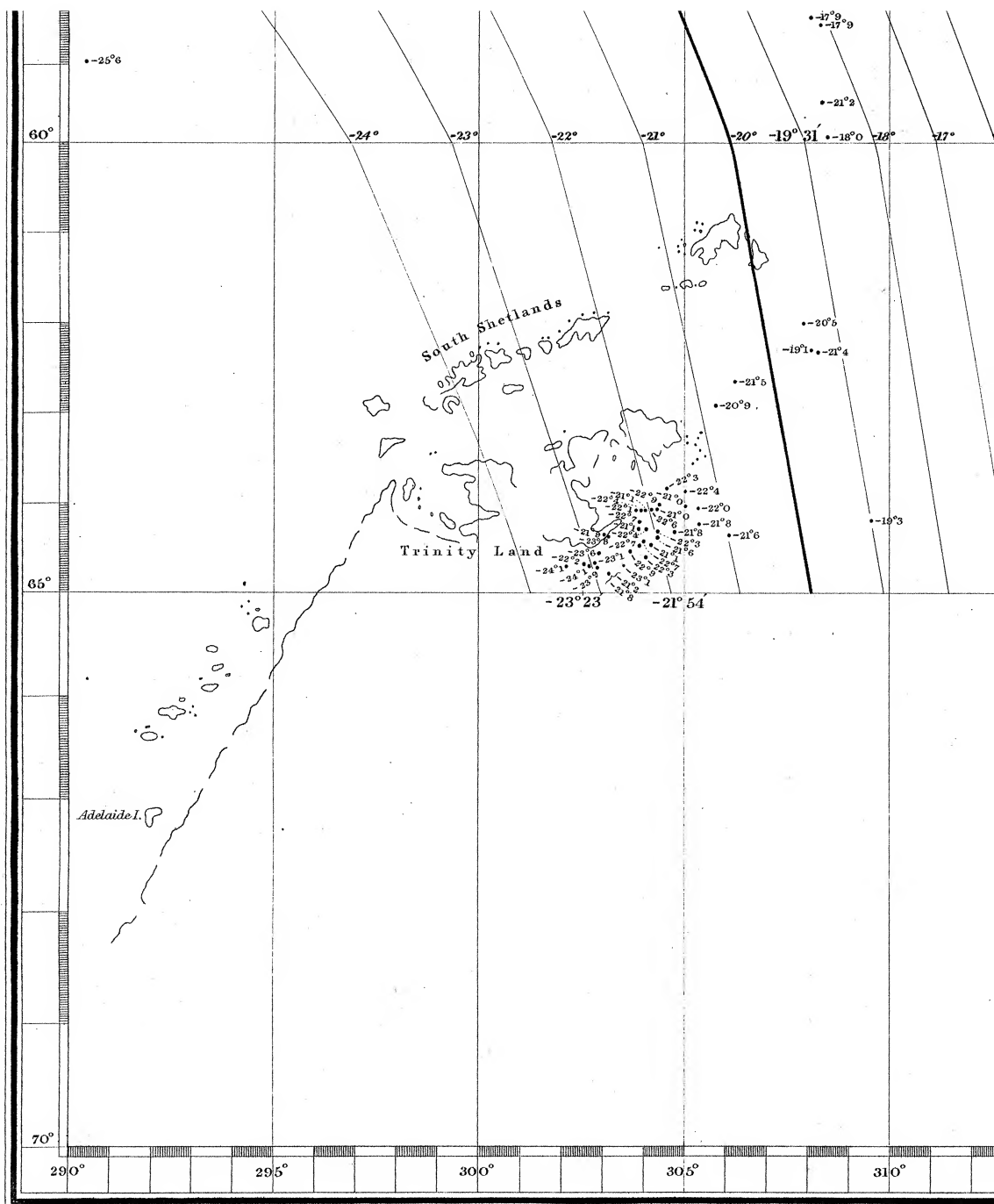


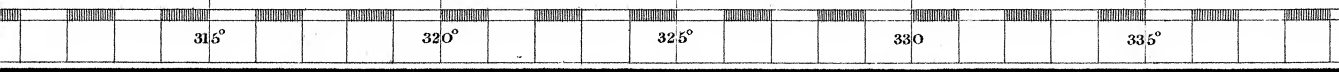
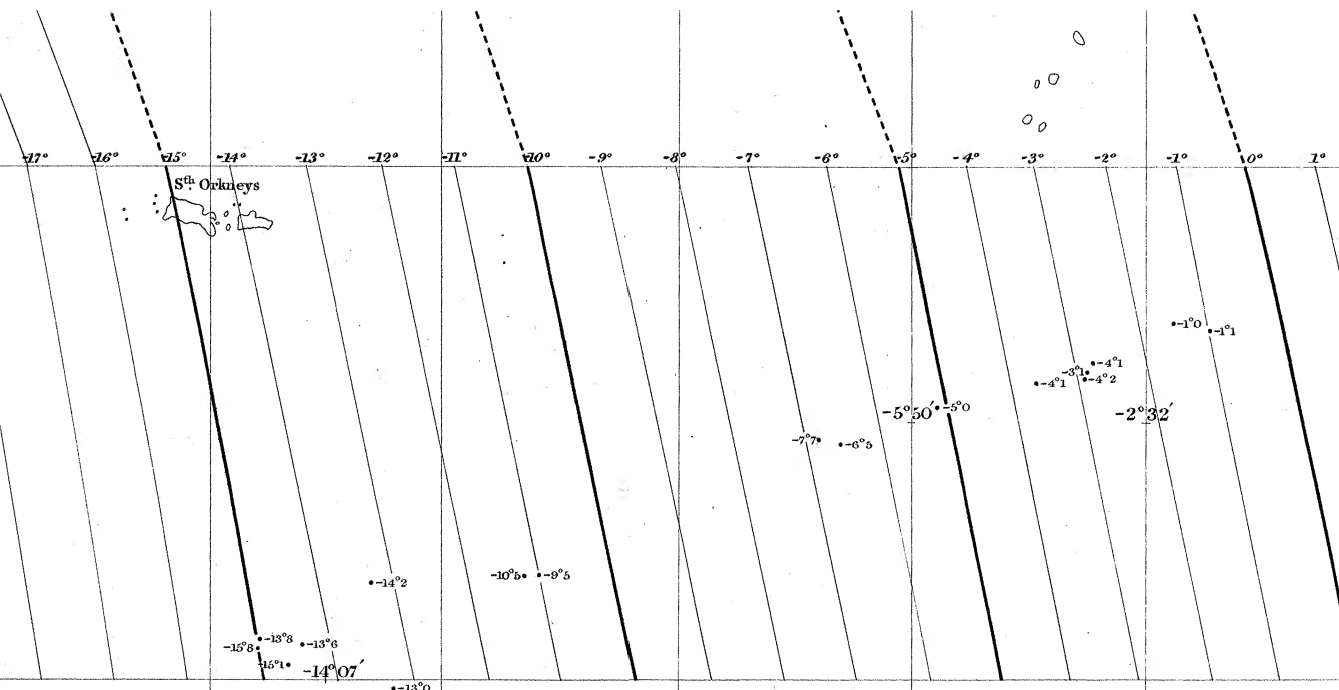


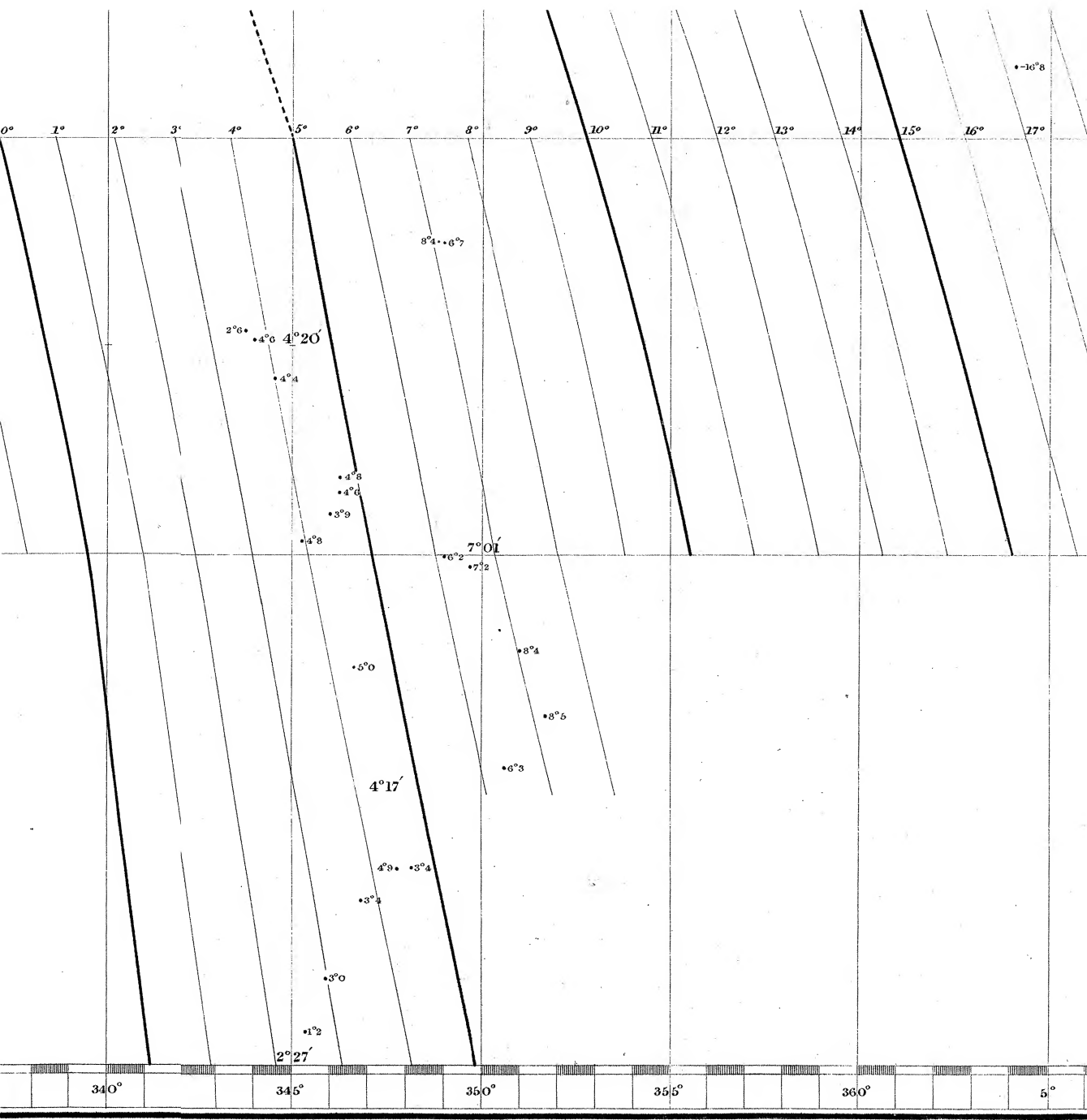






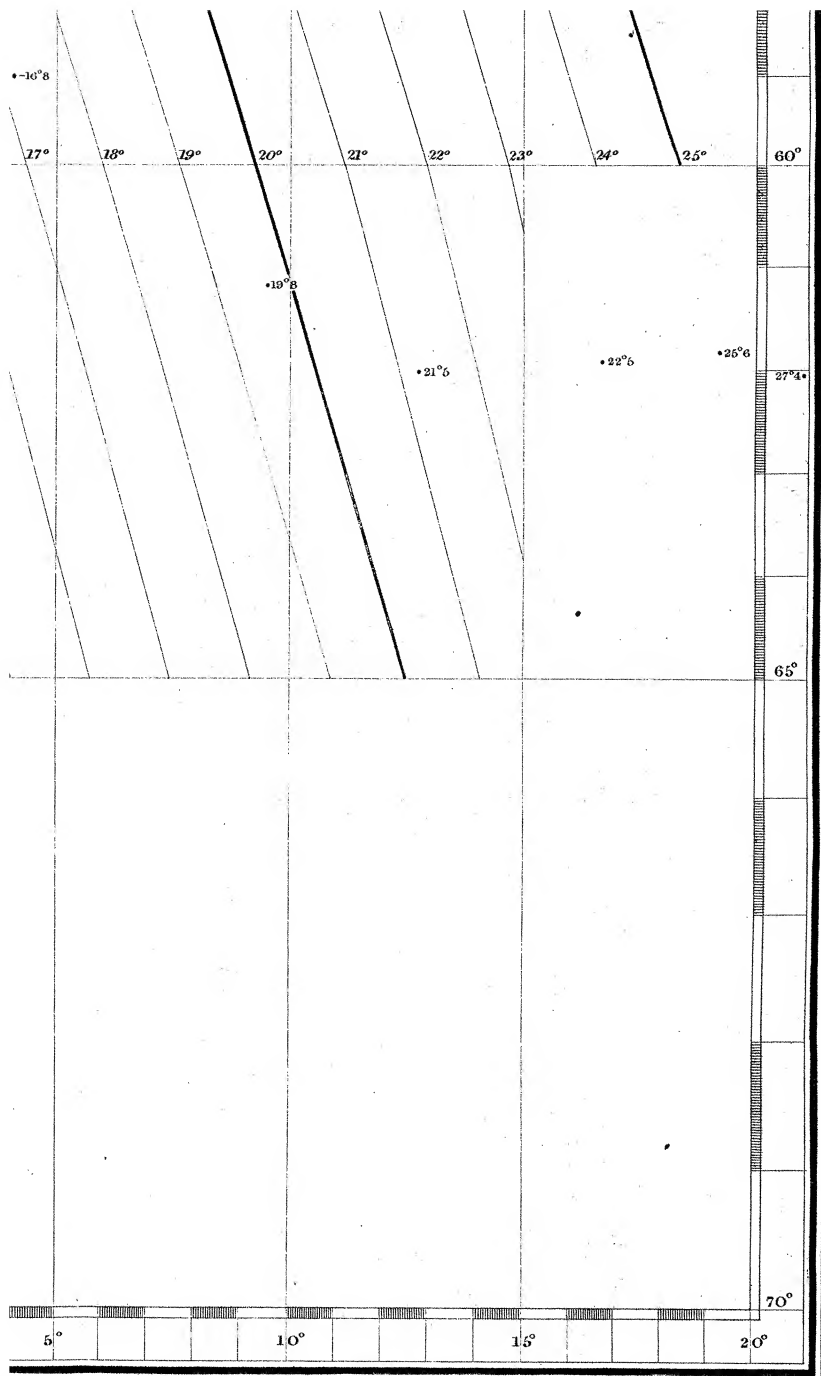




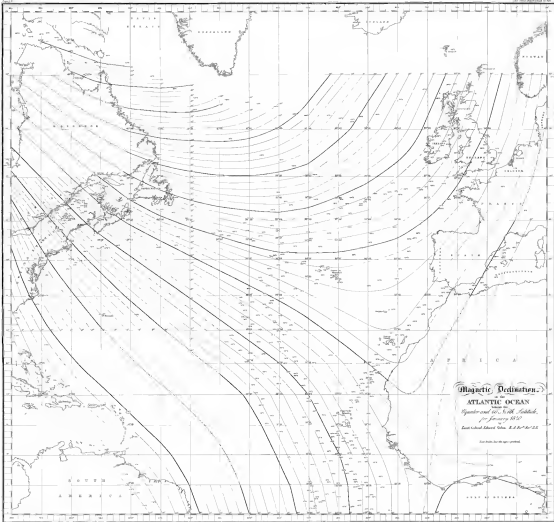


• 1°6'

• 2°7'



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Magnetic Declination.

OF THE

ATLANTIC OCEAN

Spencer and W. Smith, Lieutenants
U.S. Navy
For January 1878
From Observations and Calculations of the U.S. Navy

Published by the Navy Department

